

Oct. 16, 1956

T. KOVACS

2,766,729

FOUNTAIN PEN

Filed July 3, 1952

Fig. 1

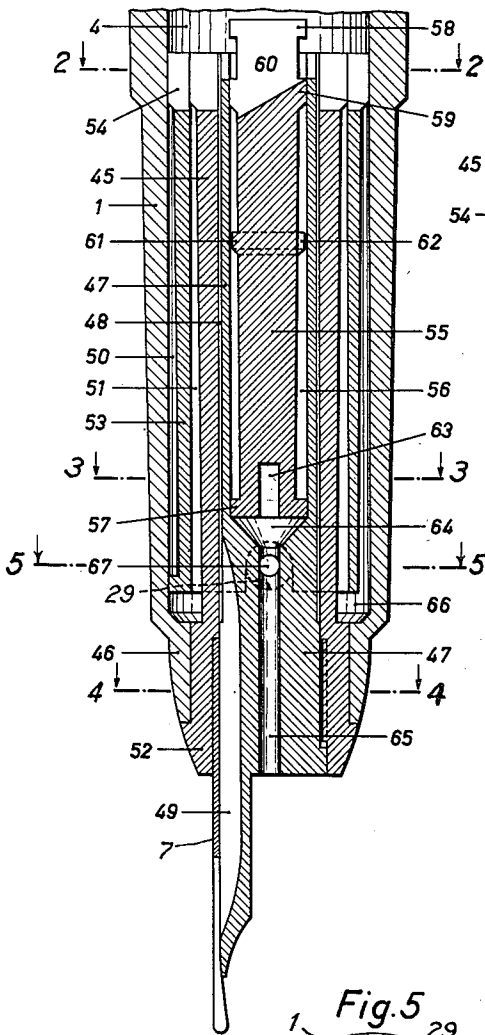


Fig. 2

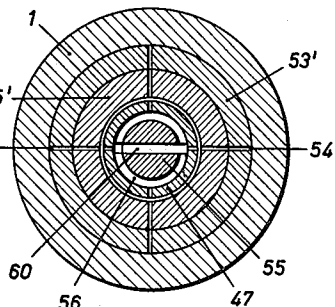


Fig. 3

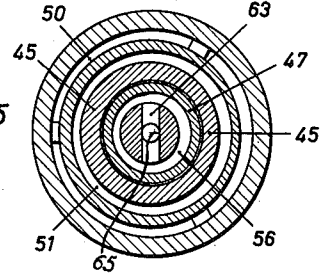


Fig. 4

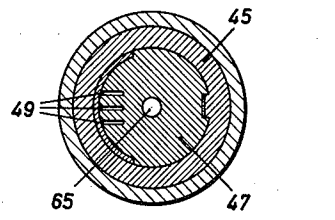
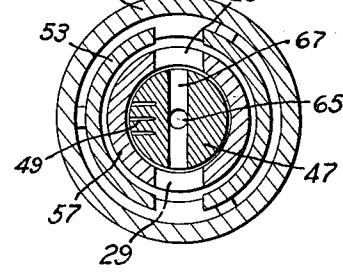


Fig. 5



Inventor:
Theodor Kovacs

by 
Attorney

1

2,766,729

FOUNTAIN PEN

Theodor Kovács, Hannover-Buchholz, Germany

Application July 3, 1952, Serial No. 297,070

Claims priority, application Germany July 10, 1951

6 Claims. (Cl. 120—50)

This invention relates to fountain pens, and more particularly to fountain pens wherein an overflow chamber is arranged in the front portion of a hollow barrel terminated at the writing end by a front end wall and wherein an ink feed bar or feed member is centrally located.

An object of the invention is to increase the capacity of the overflow chamber of such a fountain pen without an undue complication of its construction.

Another object of the invention is to provide a fountain pen which assures a uniform flow of the ink when the fountain pen is used.

A further object of the invention is to provide a fountain pen with means preventing an undesired emission of ink when the fountain pen is subjected to shaking.

Another object of the invention is to provide a fountain pen with means causing a uniform filling up of the overflow chamber with ink.

A further object of the invention is to provide a fountain pen wherein the ink feed member together with the pen nib resting thereon may be readily removed for the purpose of cleaning or exchange.

Other objects and structural details of the invention will be apparent from the following description when read in conjunction with the accompanying drawings forming part of this specification, wherein:

Fig. 1 is a fragmentary longitudinal sectional view of the front portion of a fountain pen according to the invention,

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1,

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1, and

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

The front portion 1 of the hollow barrel of the fountain pen is terminated by a front end wall 2. The barrel may be composed of several pieces or may be made of a single piece of material. A sleeve or tubular casing 3 is inserted into the front portion of the barrel. The rear portion (only partly shown) of the barrel encloses the ink reservoir 4 closed at its rear end.

The ink feed means according to the embodiment shown in Figs. 1—5 comprises said sleeve or tubular casing 45 and a bolt or bar 47 arranged therein. The sleeve or casing 45 snugly inserted into the bore of the front end wall 46 of the barrel 1 extends through the overflow chamber up to the ink reservoir 4. The outer diameter of the bolt or bar 47 to the rear of the front end wall 46 is smaller by approximately .1 millimeter than the inner diameter of the casing 45 whereby a capillary cylindrical space 48 of high capillarity is formed which leads the ink from the ink reservoir to the capillary grooves 49 arranged below the pen nib 7. Said casing 45 is imperforate for at least the predominantly major portion of its length, whereby said ink conduit 48 provides the sole communication for ink to said pen nib 7 along said predominantly major portion. The casing 45 is inserted with press fit into the bore of the front end wall 46 of the barrel 1 in such a manner that a

2

shoulder of its flange-like front end or extension 52 abuts against the front end surface of the front end portion of the barrel 1. The bar 47 of the ink feeding means, together with the pen nib resting thereon are engaged with the bore of the reinforced front portion 52 of the casing 45. They may be withdrawn from said bore in forward direction. A sleeve 53 inserted into the front portion of the hollow barrel 1 from the rear surrounds the ink feeding means 45, 47 whereby two capillary spaces 50 and 51 are formed, the first one between the sleeve 53 and the barrel 1, the second one between the sleeve 53 and the casing 45 of the ink feeding means. Said capillary spaces 50 and 51 forming the overflow chamber are tapered in longitudinal direction from the front to the rear and in transverse direction from the side opposite the pen nib to the pen nib side of the fountain pen.

The overflow chamber 50, 51 is separated from the ink reservoir by annular ridges 45' and 53' (see Fig. 2) arranged at the rear ends of the sleeves 45 and 53. Furthermore, the capillary spaces 50 and 51 of the overflow chamber are connected at their rear ends with each other, with the ink conduit 48, 49 leading to the pen nib and with the ink reservoir 4 by means of radial slots 54, which do not permit passage of air when they are in wetted condition. There are no other capillary ink ducts between the ink conduit 48, 49 and the capillary spaces 50, 51. The central bolt or bar 47 of the ink feeding means 45, 47 is hollow. A pin 55 inserted into the center bore of said hollow bar 47 forms a third capillary space 56 between its outer surface and the inner surface of the bar 47. Said third capillary space 56 is also designed according to the same principles as the capillary spaces and is tapered in longitudinal and transverse direction. Four annular ridges 57, 58, 59 and 61 are arranged on the pin 55. The annular ridge 57 at the front end of the pin 55 is arranged with press fit in the bore of the bar 47. The annular ridge 58 arranged at the rear end of the pin 55 may be used for gripping by hand so as to facilitate a withdrawal of the pin. The annular ridge 59 arranged at a short distance below the annular ridge 58 is also arranged with press fit in the bore of the bar 47. At the pen nib side of the fountain pen the annular ridge 59 is provided with a radial slot 60 extending up to the rear end of the pin and serving as an air inlet. The outer diameter of the annular ridge 61 arranged between the annular ridges 57 and 59 is smaller by approximately .2 millimeter than the inner diameter of the bore of the pin 55. At the side opposite the pen nib side of the fountain pen the annular ridge 61 is provided with a recess 62 permitting the passage of air. The front end of the pin 55 has a wide slot 63. A cone-like antechamber 64 is arranged in front of the front end surface of the pin 55. Said antechamber 64 is directly connected by an axial bore 65 of the bar 47 with the outside air. Another antechamber 66 in front of the front end surface of the sleeve 53 is connected by a transverse bore 67 of the casing 45 and of the bolt 47 with the axial bore 65 of said bar 47, as shown in Fig. 5. Said transverse bore 67 of the bolt 47 and casing opening 29 are of a dimension too great, relative to said ink conduit and ink storage space, to permit ink to enter it from said conduit or said space.

During writing the ink flows from the ink reservoir 4 through the ink conduit 48, 49 directly to the pen nib. Quantities of ink, which may be contained in the overflow chamber 50, 51, 56, are sucked back into the ink reservoir, as they cannot be discharged directly to the pen nib. Only after the emptying of the overflow chamber, replacement air passing through the recess 62 and slot 60 enters into the ink reservoir. The annular ring 61 of the pin 55 prevents a filling up of the overflow

3

chamber with ink when the fountain pen is subjected to shaking.

This embodiment according to Figs. 1-5 offers an effective shielding of the ink conduit from the overflow chamber; furthermore, the parts of the fountain pen, including the air passage 60, may be readily cleaned. The flange-like front end portion or extension 52 of the casing 45 having a conical, somewhat curved outer surface may be used as a seat for the covering cap of the fountain pen; in case of damage to said seat surface of the portion 52, 10 the casing 45 can be readily replaced by a new one.

I have described a preferred embodiment of my invention, but it is understood that this disclosure is for the purpose of illustration and that various omissions or changes in shape, proportion and arrangement of parts, 15 as well as the substitution of equivalent elements for those, herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim is:

1. In a fountain pen the combination of: a barrel having an ink reservoir in its rear portion and an overflow chamber in its front portion, said overflow chamber including at least one longitudinally extending capillary annular ink storage space tapered from the front to the rear, said barrel having an aperture at its front end, a casing inserted into the front portion of said barrel, a front portion of said casing tightly connected to the wall of said aperture, a rear portion of said casing extending within said barrel forming with its outer surface the inner surface of said ink storage space, said casing having a longitudinally extending bore, a feed bar within said bore, and a pen nib in the front portion of said casing arranged on the front portion of said feed bar, said feed bar forming in conjunction with the inner surface of said casing a capillary ink conduit extending from said ink reservoir to said pen nib, said feed bar having a center bore in its front portion and a transverse bore communicating with said center bore, said center bore and said transverse bore forming an air channel, the wall of said casing having an opening connecting said air channel with the front portion of said ink storage space, said transverse bore and casing opening being too wide, relative to said ink conduit and ink storage space, to permit ink to enter it from said conduit or said space and to flow from said space to said ink conduit, and said casing being otherwise imperforate for at least the predominantly major portion of its length whereby said ink conduit provides the sole communication for ink to said pen nib along with said predominantly major portion.

2. In a fountain pen as claimed in claim 1, a head arranged at the front end portion of said casing abutting against the front end surface of said barrel.

3. In a fountain pen as claimed in claim 1, a sleeve arranged within the front portion of said barrel, said 55

4

sleeve surrounding the rear portion of said casing and forming in conjunction with the outer surface of the latter said annular ink storage space, the outer surface of said sleeve forming in conjunction with the inner surface of said barrel another annular ink storage space tapering from front to rear, both annular spaces communicating at its rear end with said ink reservoir, said first mentioned ink storage space communicating through said opening in the wall of said casing with said air channel, and said second mentioned ink storage space communicating with said first mentioned ink storage space and, thus, with said air channel.

4. In a fountain pen as claimed in claim 3, the rear portion of said feed bar having a wide center bore, a pin inserted into said wide center bore, said pin forming in conjunction with the inner surface of said feed bar an additional longitudinally extending annular ink storage space tapered from the front to the rear, the rear end portion of said casing, of said sleeve and of said pin each having annular ridges, said ridges being in abutment to separate the respective ink storage spaces from said ink reservoir, said ridges having slits connecting said ink storage spaces with said ink reservoir, with each other and with said ink conduit, one of said slits being large enough to form an air duct between the corresponding ink storage space and said ink reservoir, all other slits being capillary so as to prevent passage of air when they are in wet condition.

5. In a fountain pen as claimed in claim 4, each of said first mentioned, second mentioned and additional longitudinally extending annular ink storage spaces being reduced in transverse direction from the side from the fountain pen opposite to the side containing said pen nib towards said last mentioned side.

6. In a fountain pen as claimed in claim 4, an annular rib arranged on the inner member of two of said members forming in conjunction with each other one of said ink storage spaces which communicates with the slit which is large enough to form said air duct, said annular rib being arranged within said ink storage space remote from said air duct and forming in conjunction with the inner surface of the associated outer member a capillary passage, and said annular rib having a recess for the passage of air at the side opposite to said air duct.

References Cited in the file of this patent

UNITED STATES PATENTS

2,375,770	Dahlberg	May 15, 1945
2,512,004	Wing	June 20, 1950
2,581,739	Wing	Jan. 8, 1952

FOREIGN PATENTS

828,966	Germany	Jan. 21, 1952
835,414	Germany	Mar. 31, 1952