

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Fountain Pens

We, HEINRICH HEBBORN and HEINRICH SCHLICKSUPP, both German Citizens, trading as H. HEBBORN & COMPANY, of Domstrasse 49, Cologne-on-Rhine, Germany, 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:—

The present invention relates to fountain pens. It is known in fountain pens to fill a large space with ink if the suction piston is connected by a long rod with a closing cap, and after the screwing off of this cap, the piston is drawn back up to the end of the barrel. In order that the piston rod may be accommodated on the screwing up of the closing cap, the latter is made hollow, and the rod divided into several parts telescoping one into the other and connected together by bayonet joint fastenings, so that after the uncoupling and collapsing of these parts the piston rod is housed in the hollow closing cap.

These fountain pen barrels have the drawback that the long piston rod is easily liable to damage in the forward and backward movements, owing to the absence of a guide, whereby further use of the pen is prevented. Furthermore, the packing of the suction piston in the barrel is easily detrimentally affected when it is frequently pushed forward and backward in a canted position owing to the absence of a guide.

Further, fountain pen barrels are no longer new in which the suction piston is operated by means of a screw gear by a finger grip piece which engages with a thread of low pitch in the barrel. Such fountain pen barrels have the drawback that in them several telescopic piston rod parts connected by bayonet joint fastenings cannot be provided.

According to the invention a fountain pen is provided having means for sealing the ink reservoir and having a piston rod consisting of parts screwed into each other in which the thicker part of the piston rod is mounted so as to be rotatable and longitudinally movable in a guide sleeve located in the upper end of the barrel and

is provided with an annular packing surface, which co-operates with a corresponding packing seat arranged in the guide sleeve for the purpose of sealing the ink reservoir to the outside, means being provided for securing this longitudinally movable piston rod part in its end position which effects the sealing.

An example of construction of the invention is shown in the accompanying figures 1, 2 and 3 which are longitudinal sectional views with the parts in different positions.

A piston *a*, Figure 1, which is tightly inserted in a barrel *b* is carried by a piston rod *h*, the head *h*¹ of which, thickened and provided with an external thread, is screwed into the internal thread of a small diameter telescopic tube *g*. This telescopic tube *g* is, in its turn, screwed with the external thread of its thickened head *g*¹ into the internal thread of a second telescopic tube *g*² of greater diameter. This second telescopic tube *g*², which is connected at the upper end with a rotatable knob *f*, bears, by means of its lower projecting flanged edge and a packing ring *c* thereon, on the lower end of a guide-sleeve *d* secured in the barrel *b* when it is in its highest position closing the ink space or reservoir of the barrel. This position is attained when a closing cap *e* having an internal thread is screwed up on the rotatable knob *f*, which is provided with an external thread. The telescopic tube *g*² is mounted so as to be freely rotatable in the guide-sleeve *d*.

Figure 2 shows the piston in the retracted position.

The telescopic members *h*, *g*, *g*² are screwed into each other, while the rotatable knob *f*, which in the illustration of the fountain pen barrel in Figure 1 does not bear on the upper end of the guide-sleeve, has now come to bear on the barrel *b* by the resistance due to the friction between the piston *a* and the barrel *b*. During the retraction of the piston the packing *c* has lifted from the lower end of the guide-sleeve *d*, so that the air behind the piston *a* can escape along the outer surface of the thick, i.e. large diameter, telescopic tube *g*². In order to

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prevent a closure occurring between the bearing surface of the knob *f* and the upper end of the guide-sleeve *d*, during the filling of the barrel a small recess *i* is provided on the rotatable knob. In the position of the parts of the fountain pen barrel shown in Figure 2, the closing cap *e* is not screwed up on the knob *f*. It has been simply drawn to show the position of the thread on the end of the rotatable knob *f* relative to the position of the thread in the protective cap *e*.

Figure 3 shows the barrel in the fully closed position after the filling, in which by the screwing up of the cap *e* on the rotatable knob *f*, the piston *a* with its telescopic piston rod *h*, *g*, *g*² is so displaced in the axial direction that the packing ring *c* again comes to bear against the guide-sleeve *d*. By the cap *e* bearing against the barrel *b* the sealing pressure is produced at the point *c*.

The filling capacity of the barrel with the piston rod constructed in three parts is greater than 50% of the length of the barrel. If instead of the three-part piston rod, one made in four or more parts is employed, the filling capacity is correspondingly increased.

It is without importance that the piston can rotate in the barrel *b*, so long as the cap *e* is not screwed up. With sufficient sealing pressure between the piston packing and the barrel, the rotation is prevented by this sealing pressure. It is however also possible to prevent any rotary movement of the piston by any of the known parallel guides or by a stop and pin.

Having now particularly described and

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

1. A fountain pen having means for sealing the ink reservoir and having a piston rod consisting of parts screwed into each other in which the thicker part of the piston rod is mounted so as to be rotatable and longitudinally movable in a guide sleeve located in the upper end of the barrel and is provided with an annular packing surface, which co-operates with a corresponding packing seat arranged in the guide sleeve for the purpose of sealing the ink reservoir to the outside, means being provided for securing this longitudinally movable piston rod part in its end position which effects the sealing.

2. A fountain pen as claimed in claim 1, in which a closure cap screwed on the free end of this piston rod part and bearing against the guide sleeve is employed as the means for securing the longitudinally movable piston rod part in its end position that effects the sealing.

3. A fountain pen as claimed in claim 1 or 2 in which an outlet passage is provided between a rotatable knob on an outer part of the piston rod and the guide sleeve to permit escape of air from behind the suction piston.

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

Dated this 19th day of December, 1935.

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

