

PATENT SPECIFICATION

463,157



Application Date : July 4, 1936. No. 18587/36.

Complete Specification Accepted : March 23, 1937.

COMPLETE SPECIFICATION

Improvements in or relating to Fountain Pens

We, HEINRICH HEBBORN and HEINRICH SCHLICKSUPP, both German Citizens, trading as H. Hebborn & Co. of Domstrasse 49, Köln am Rhein, Germany, do hereby
5 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:—

10 The present invention relates to fountain pens of the type having an ink reservoir and a piston for filling the reservoir operated through piston rod parts which
15 screw into each other.

20 The specification of our Patent No. 451168 describes and illustrates a fountain-pen having means for sealing the ink reservoir and having a piston-rod consisting of parts which screw into each
25 other, in which the thicker part of the piston-rod is mounted so as to be freely rotatable and longitudinally movable within limits in the barrel, and is provided with an annular packing surface
30 which co-operates with a corresponding packing seat in the barrel for the purpose of sealing the ink reservoir externally.

35 In this fountain-pen it was necessary to provide special means for drawing back the longitudinally movable piston-rod member into its rear end position and holding it there after the ink reservoir had been filled with ink, so as thereby to effect the sealing of the ink reservoir to
40 the rear.

45 The present invention is based on the recognition that these special means can be dispensed with, if a second packing seat is arranged in the barrel to co-operate in known manner with the rear of the piston which is formed as a packing
50 surface.

55 This new combination of the two packing or sealing means has the result that the sealing of the ink reservoir is effected automatically at the end of the filling operation by the final longitudinal displacement of the piston in the outward direction, and an additional operation for the sealing of the ink reservoir, as in the arrangement of Patent No. 451168, is no longer necessary.

It is preferable to construct the part of the penholder sleeve forming the bearing for the piston rod and carrying the

packing seat or the two packing seats as a separate bush which is inserted in the barrel. By this means the result is attained that only a single, comparatively
60 small, part of the barrel need be made with special exactness, which can then be easily replaced and changed at any time.

65 Preferably the said bush, provided with an external thread and having a bore corresponding to the diameter of the thicker part of the piston rod, has a cylindrical bored out part at its end facing the ink reservoir, the annular face of which bore serves as a sealing seat for a corresponding annular sealing face
70 provided on a collar of the thicker piston rod part, and the bush at the same end has a conical part which co-operates as a sealing seat with a conical sealing face arranged on the back of the piston.
75

An example of construction of the invention is shown in the accompanying drawing.

80 The piston-rod carrying the piston *a* of a fountain-pen is composed of three parts b^1 , b^2 , b^3 which are capable of screwing into each other. While the thinner end b^3 is connected to the piston *a*, the thicker part b^1 is mounted so as to be longitudinally movable and rotatable in a bush *d*
85 which is screwed into the barrel *c*, and which has a bore corresponding to the diameter of the part b^1 of the piston rod.

90 The part b^1 of the piston rod mounted in the bush *d* carries on its externally projecting end a rotatable knob *e* rigidly united to it, and at its other end has a collar *f* one annular face f^1 of which co-operates with a corresponding annular packing seat d^1 on the bush *d*. Further-
95 more, the bush *d* is conically bored out at its end situated in the barrel, and thus forms a packing seat d^2 for a corresponding conical packing or sealing face a^1 on the piston *a*.
100

105 If the piston *a* of the new fountain pen is in its forward end position and ink is to be sucked into the barrel, the knob *e* is rotated in a clockwise direction. By the friction which the piston *a* encounters on the wall of the barrel sleeve *c*, the parts b^1 and b^2 of the piston rod, which are not hindered in rotating like the piston *a*, first screw themselves into the barrel *c* until the
110

[Price 1/-]

Price 4s 6d

lower end of the knob *e* bears against the bush *d* and finds an abutment on this. In this way the longitudinally movable part *b*¹ of the piston rod is at first drawn so far into the barrel *c* that there is a perceptible distance between the sealing face *f*¹ of the collar *f* provided on the part *b*¹ of the piston rod and the packing seat *d*¹ in the bush *d*. A further rotation of the knob *e* in the clockwise direction then results in the piston *a* being drawn backwards into its rear end position, and thereby the air at the back of it is discharged outside between the packing faces *f*¹, *d*¹ and between the cylindrical parts of the bush *d* and the piston rod part *b*¹.

As soon as the piston *a* has reached its rear end position, that is, when the whole ink reservoir is filled with ink, the piston *a* bears with its conical packing face *a*¹ against the packing seat *d*², on the bush *d*, and thereby prevents an entrance of the ink into the space situated behind the piston.

If the piston is to be again brought into its forward end position for the purpose of emptying the ink reservoir or to prepare this for re-filling, the knob *e* is rotated in the anti-clockwise direction. This has first the effect, that the longitudinally movable part *b*¹ of the piston rod, owing to the retarding which the piston *a* tightly fitting in the barrel *c* experiences in its rotation, screws out of the barrel *c*, on the more slender parts *b*², *b*³ of the piston rod, until the sealing face *f*¹ of its collar *f* bears against the packing seat *d*¹ of the bush *d*, there finds an abutment, and at the same time thereby closes the ink reservoir to the rear in an airtight manner. A further turning of the knob *e* then results in the forward movement of the piston *a*, during which it is impossible for ink to come out of the rear end of the barrel even during this operation.

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 which screw into each other and the thicker part of which is mounted so as to be capable of limited longitudinal movement in the barrel, characterised by the combination of two known packing means, one of which is formed by an annular packing surface on the thicker part of the piston-rod and a corresponding packing seat in the barrel, while the other consists of a packing surface on the rear of the piston co-operating with a corresponding packing seat arranged in the barrel.

2. A fountain pen as claimed in Claim 1 in which the member forming the bearing for the piston-rod, and on which the seats for the packing surface of the thicker part of the piston-rod and for the piston packing surface are formed, is constructed as a bush inserted in the barrel.

3. A fountain pen as claimed in Claim 2 in which the bush, provided with an external thread and having a bore corresponding to the diameter of the thicker part of the piston rod, has a cylindrical bored out part at its end facing the ink reservoir, the annular face of which bore serves as a sealing seat for a corresponding annular sealing face provided on a collar of the thicker piston rod part, and the bush at the same end has a conical part which co-operates as a sealing seat with a conical sealing face arranged on the back of the piston.

4. Fountain pens having an ink reservoir in the barrel and a piston for filling said reservoir as particularly described with reference to the accompanying drawing.

Dated this 3rd day of July, 1936.

W. P. THOMPSON & CO.,
12, Church Street, Liverpool, 1,
Chartered Patent Agents.

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

