

PATENT SPECIFICATION



Convention Date (Germany) : April 2, 1937.

Application Date (In United Kingdom) : Feb. 9, 1938.

Complete Specification Accepted : March 16, 1939.

502,381

No. 4019/38.

COMPLETE SPECIFICATION

Improvements in and relating to Fountain Pens

We, MONTBLANC-SIMPLE G.M.B.H., of 75/77, Schanzenstrasse, Hamburg 6, Germany, a German Company, 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:—

This invention relates to a fountain pen having a suction piston and a piston rod composed of a plurality of threaded sleeves disposed telescopically one within the other.

It is known, that in fountain pens operating with a suction piston the ink space can be enlarged when the piston is moved by means of a plurality, for instance three or four, of threaded sleeves disposed concentrically one within the other, which are capable of being drawn apart telescopically. Hitherto it has been found very difficult to find room for such sleeves in the limited space available, without detrimentally affecting the reliability of operation and the strength of the mechanism. One expedient proposed was a compression spring which was intended to prevent the sleeves from turning. But this compression spring, when in the compressed state, of course also takes up some space which is lost for the ink filling. The ordinary diameter of fountain pens was no longer sufficient, so that the fountain pens had to be made thicker and less convenient to handle.

Moreover in the known screwing piston pens it is to be noted, that the piston is moved by means of threaded spindles, which may also slide telescopically one within the other, in the ink reservoir in the direction of the longitudinal axis. The rotary motion of the threaded spindles was imparted to them by means of a screw knob which was in most cases protected, when in the inoperative position, by a screw-on cap. This screw knob had a very small diameter, however, so that fairly considerable force had to be expended for overcoming the resistance due to the friction of the piston in the ink reservoir. It was also very inconvenient first to have to remove the screw-on cap, when the pen had to be refilled. For this several

manipulations were necessary and frequently the screw-on cap was lost.

In contradistinction thereto the invention relates to a fountain pen having a suction piston and a piston rod composed of a plurality of threaded sleeves disposed one within the other, which is characterised by the feature that a screw cap is connected with the piston spindle by a coupling, constructed as a friction coupling in such a manner that it drives the piston spindle during the suction stroke only when the piston is in its forward end position and releases the coupling of the screw cap only when the piston is in its rear end position.

In the accompanying drawings constructional examples of the fountain pen according to the invention are illustrated.

Fig. 1 is a longitudinal section through a fountain pen according to the present invention with the new screw cap with idle motion and friction coupling.

In Fig. 2 another constructional example of the invention with a guide ring is shown.

In Fig. 1 a fountain pen having a sleeve-like barrel 31 is shown, which has at its forward end a screwed-in member 32 and in the latter an ink guide 33 and nib 34.

The rear part of the barrel is provided with a sleeve-like screwed-in part 35, the internal bore 36 of which serves as a guide for the sliding or guiding sleeve 37.

At the rear end of the threaded part 35 is a bore 39, in which the rear part of the threaded spindle 40 is journalled and secured against axial displacement by two collars 41, 42.

The extreme rear part of the screw spindle 40 terminates in a threaded extension 43, on to which a nut 44, preferably of brass or the like, is screwed so as to be capable of turning. The nut 44 is fixed in a screw cap 45. The screw cap 45 is so constructed that it forms a cap-like closure gradually merging into the barrel 31 and engages with a sleeve or bell-like part 46 over a correspondingly reduced spigot-like part 35¹ of the screwed-on part.

The threaded extension 43, over which

[Price 1/-]

the nut 44 can be screwed, is provided with an abutment or a washer 47. The ring-shaped collars 41, 42 and the abutment 47 are preferably pressed by the deformation of spring rings firmly into grooves provided on the spindle 40.

When the piston-operated fountain pen is to be filled, the piston 50 is in the position shown in Fig. 2, that is towards the rear end. On the turning knob 45 being turned in the counterclockwise direction, the nut will first screw along the threaded extension 43, until the abutment 47 comes against the inner surface 48 of the nut. When the parts bear against one another in this way, as shown in Fig. 1, then, on the screw cap 45 being further turned, the piston 50 will be brought to the left into the position shown in Fig. 1. On the screw cap 45 being then turned in the clockwise direction, the nut 44 will not yet become released from the spindle 43, but the coupling 47 will by friction hold the nut 44, the piston 50 will be moved to the right as seen when looking at the drawing and ink is sucked in between the nib and the ink guide. As soon as the piston 50 comes to the right against an abutment, the blocking of the coupling 47 becomes released and the screw cap 45 is screw with its edge 51 tightly against the shoulder 52 of the screw-in part 35.

Owing to the novel construction of the screwing with the blocking of the coupling, it is certain that the piston will be brought right into its extreme positions and consequently that the ink space will be filled to its utmost capacity with ink, as otherwise the blocking of the coupling 47 with the shoulder 48 will not take place.

Fig. 2 shows a further constructional form of the invention. When certain materials, for instance plastic materials such as cellulose horn, phenolaldehyde condensation products, cellulose derivatives such as acetyl-cellulose and the like, are used, it has been found that they tend to become misshapen and to warp and that, according to circumstances they swell or shrink. This presents the disadvantage, that for instance the sleeve-like piston shank 38 will jam in the bore 36 of the screwed-in part 35 and the motion imparting arrangement may be torn or destroyed, owing to excessive friction. In order to obviate these disadvantages, according to the present

invention there is provided in the inner part 53 of the screwed-in part 35, in a corresponding recess of the same, an annular or similarly shaped guiding part 54 of non-swelling or non-shrinking material, for instance of a metal, such as brass, of vulcanite or the like, so that the piston shank 38 is guided only along a short piece in the guiding part 54 and in the rear part of the bore 36 or 36¹ has a certain clearance, as shown at 55 in Fig. 2. This prevents any jamming of the moving parts, when materials are used, which will not retain their shape in all circumstances. The guiding part may, as shown in Fig. 2, have the form of an internal ring surface or a hollow cylinder or the form of an annular rib or the like.

As shown in Fig. 2, that part of the interior of the barrel 31, which is behind the piston, that is the part not containing ink, may be in communication with the outer air through a hole 26 which leads to the atmosphere through the rear part 35¹ of the screwed-in part 35, for preventing compression of the air behind the piston, when the latter is screwed back.

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 a suction piston and a piston rod composed of threaded sleeves fitting telescopically one in the other, characterised by the feature that a screw cap is connected with the piston spindle by a coupling, constructed as a friction coupling in such a manner that it drives the piston spindle during the suction stroke only when the piston is in its forward end position and releases the coupling of the screw cap only when the piston is in its rear end position.

2. A fountain pen as claimed in claim 1, characterised by the feature that the coupling is constructed as a friction coupling which consists of a washer secured on the rear end of a threaded spindle which terminates in a threaded extension, and nut secured in the interior of the screw cap and screwing on to the threaded extension.

3. The improved fountain pen substantially as described with reference to the accompanying drawing.

Dated this 2nd day of February, 1938.
MARKS & CLERK.

[This Drawing is a full-size reproduction of the Original.]

Fig.

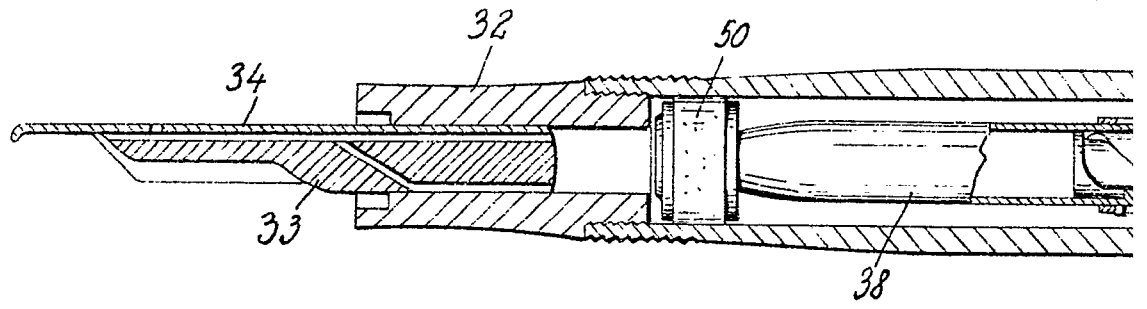


Fig.

50

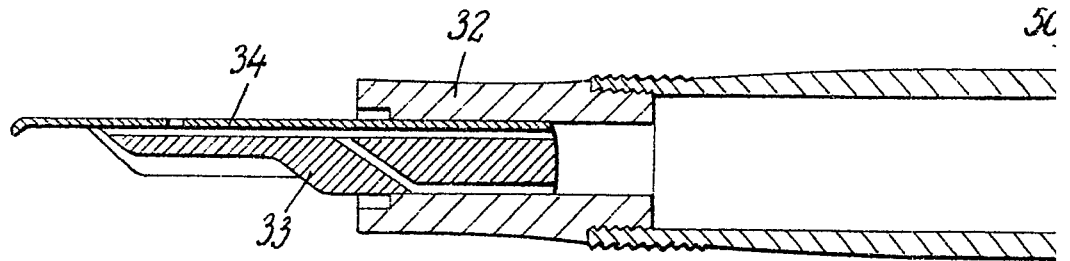


Fig.1

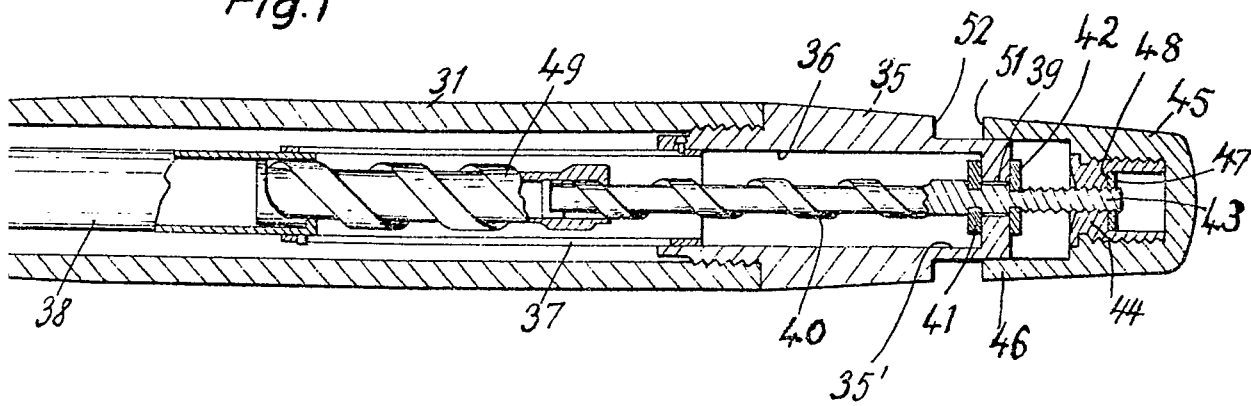
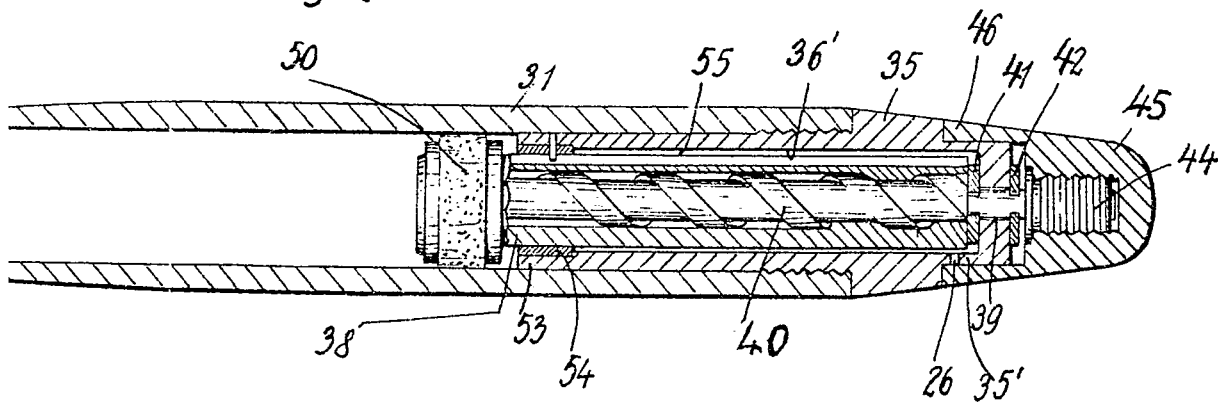


Fig.2.



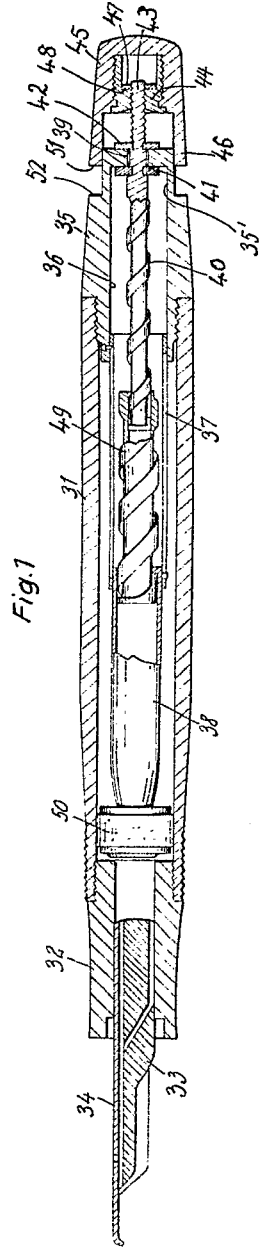


Fig. 1

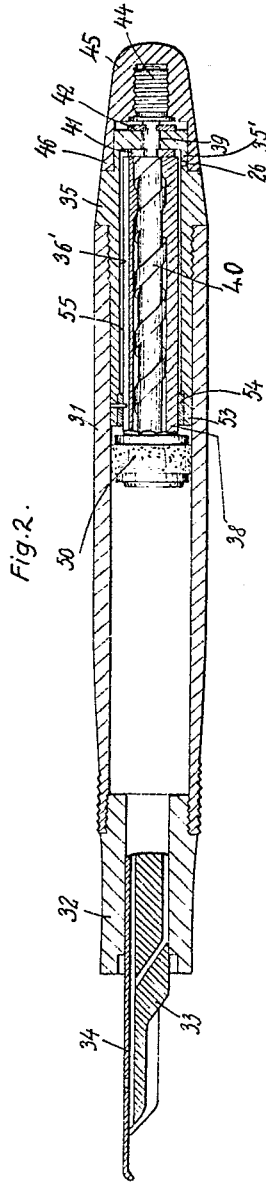


Fig. 2.

[This Drawing is a full-size reproduction of the Original.]