June 9, 1925. 1,540,763

S. V. CORONA

FOUNTAIN PEN

Filed July 15, 1921

Fig. 1.

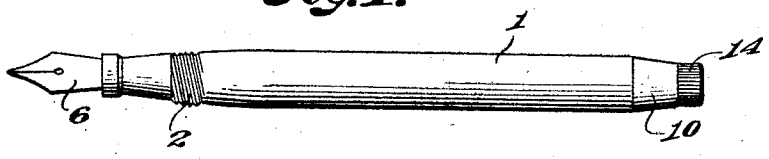


Fig. 2.

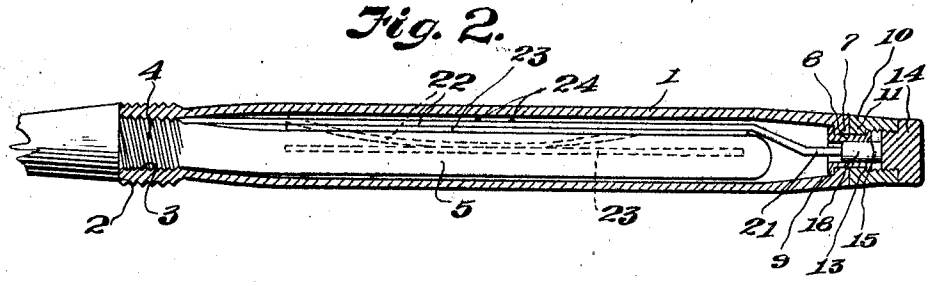


Fig. 3.

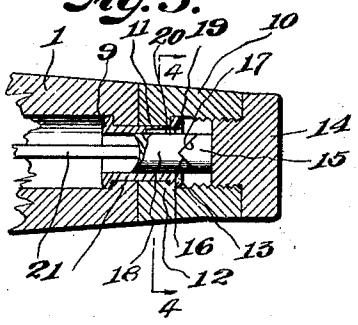
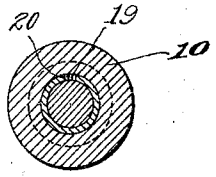


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN PEN.

Application filed July 15, 1921. Serial No. 484,993.

To all whom it may concern:

Be it known that I, SAMUEL V. CORONA, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented new and useful Improvements in Fountain Pens, of which the following is a specification.

This invention relates to fountain pens and more particularly to fountain pens of the self-filling type.

An object of the invention is to provide a self-filling fountain pen which is simple in construction and does not embody any protruding structures necessary in the operation of the filling mechanism as well as one in which the operating structure for the filling mechanism is conveniently located to be easily and quickly operated without requiring the removal of any caps, the movement of any levers or analogous structures.

More specifically the invention comprehends the provision of a self filling fountain pen wherein the filling or emptying operation is performed by the rotation of a button or cap carried at one end of the barrel of the pen body, the said button or cap serving to operate a pair of cams which in turn contract the ink carrying bag for creating a suction upon the expansion of the bag for drawing ink thereinto.

Other objects of the invention will appear in the following detailed description and in the accompanying drawing wherein:

Fig. 1 is an elevation of the improved fountain pen without the closing cap.

Fig. 2 is a fragmentary longitudinal section through the pen.

Fig. 3 is an enlarged detail section of the self-filling structure.

Fig. 4 is a cross section taken on the line 4—4 of Fig. 3.

Referring more particularly to the drawing the fountain pen structure comprises a barrel 1 which is constructed in the usual manner being externally threaded as shown at 2 to receive thereon a closing cap (not shown) and the pen carrying end of which barrel is internally threaded as shown at 3 to receive the attaching head 4 of the ink carrying bag 5. As is usual in self-filling fountain pen structures the ink carrying bag 5 is formed of soft rubber and after it has been collapsed the suction created by its expanding or reflexing action will draw the ink thereinto which ink is dispensed in the usual manner through the point 6.

In the present invention the barrel 1 has an inwardly extending flange 7 at its end remote from the pen carrying end thereof. A ferrule 8 is inserted through the reduced opening in the barrel 1 formed by the flange 7 and it is provided with an outwardly extending flange 9 which engages against the inner end of the flange 7 as clearly shown in Figure 3 of the drawing. The ferrule 8 extends into the sleeve 10 which is provided with an annular inwardly extending flange 11 forming a shoulder 12 against which the annular flange 13 of the ferrule 8 engages for connecting the sleeve 10 to the body 1 to permit rotation of the sleeve 10 relative to the body. In assembling the pen, the flange 13 is spun on the ferrule 8 after it is placed in position.

A cap 14 is threadably connected to the sleeve 10 and it carries a cam 15. The cam 15 is rigidly mounted in the cap 14 and has its inner end beveled in both directions towards its center as clearly shown at 16 forming a wedge-shaped end which extends into a correspondingly recessed end 17 of the longitudinally movable cam 18. The cam 18 has a radial lug 19 thereon which extends into a recess 20 formed in the sleeve 8 to prevent rotation of the cam 18 but permit it to move longitudinally in the sleeve 8, the sleeve being fixed against rotation. The outer end of the cam 18 is recessed and receives therein the end 21 of the spring 22. The flat spring 22 extends longitudinally in the barrel and its end remote from the end 21 is engaged between the ink bag 5 and the barrel 1 adjacent the head 4 of the ink bag. A bag compressing strip 23 is carried by the spring 22 being connected thereto by suitable rivets 24 intermediate the ends of the spring and strip.

When the cap 14 is rotated the bevel end portion 16 of the cam 15 riding over the bevel recessed ends of the cam 18 will move the cam 18 outwardly or towards the ink bag 5, bowing the spring 22 as shown in dotted lines in Fig. 2 of the drawing, and forcing the strip 23 towards the axis of the barrel 1 which will compress the ink bag 5. The foregoing operation will be provided in the first half rotation of the cap 14 and the second half of the rotation of the cap will move the beveled ends of the cams into

registration or engagement permitting the spring 22 to assume its normal position which allows the bag 5 to reflex or assume its normal position which creates a suction and draws ink into the bag. The same operation empties the bag when it is desired.

From the foregoing description taken in connection with the accompanying drawing it will be apparent that a self-filling fountain pen has been provided which is simple in construction and which requires only a minimum amount of effort and time to properly fill the pen as well as one in which the use of removable caps, projecting parts or the like is eliminated except those actually used in the filling of the pen.

It is, of course, to be understood that the invention may be constructed in various other manners and the parts associated in different relations and, therefore, I do not desire to be limited in any manner except as set forth in the claims hereunto appended.

Having thus described my invention what I claim is:

1. In a self filling fountain pen, a barrel, a sleeve, a ferrule connecting said sleeve and barrel to permit rotary movement of the sleeve, an ink bag, means for compressing said ink bag, a longitudinally movable cam carried by said ferrule, a second cam rotatable with said sleeve and engaging said first named cam for operating said bag compressing means.

2. In a self filling fountain pen, a barrel, a closure for the butt end of the barrel, a ferrule connecting said closure and barrel to permit rotary movement of the closure relative to the barrel, an ink bag, means for compressing said ink bag, a longitudinally movable cam carried by said ferrule, and a second cam rotatable with said closure and engaging said first named cam for operating said bag compressing means.

3. In a self filling fountain pen, a barrel, a closure for the butt end of said barrel, a ferrule connecting said closure and barrel to permit rotary movement of the closure relative to the barrel, an ink bag, means for compressing said ink bag, a longitudinally movable cam carried by the ferrule, and means rotatable with said closure and engaging said cam for operating said bag compressing means.

4. In a self filling fountain pen, a barrel, a closure for the butt end of said barrel comprising a sleeve, a cap connected to said sleeve for rotary movement with the sleeve, a ferrule connecting said closure and said barrel to permit rotary movement of the closure relative to the barrel, a cam carried by said cap, an ink bag, means for compressing said ink bag, and means carried by said ferrule and engaging said cam for operating said bag compressing means.

In testimony whereof I affix my signature.

SAMUEL V. CORONA.