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F. J. KRISTOFEK

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FOUNTAIN PEN

Filed Aug. 11, 1924

Fig. 1.

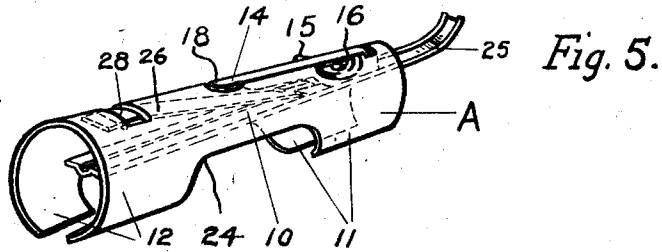
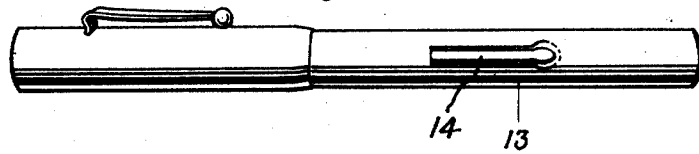


Fig. 5.

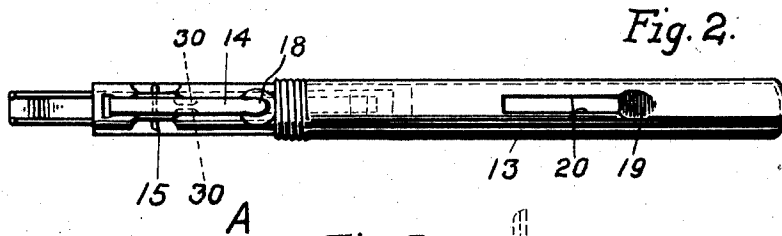


Fig. 2.

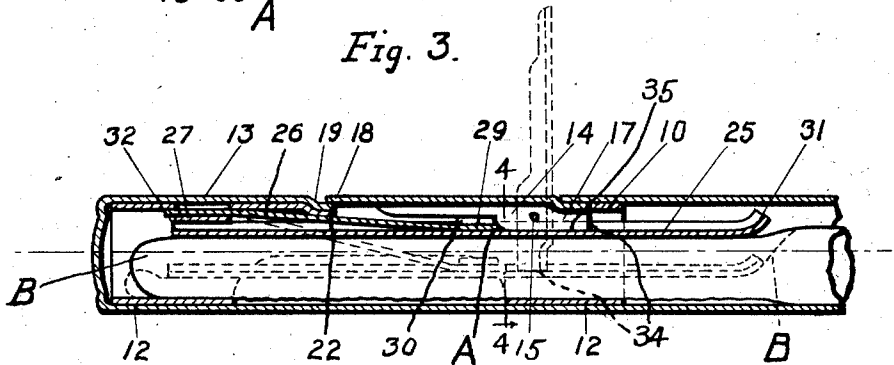


Fig. 3.

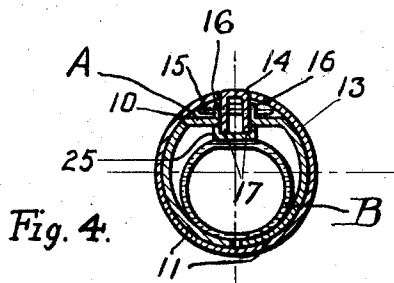


Fig. 4.

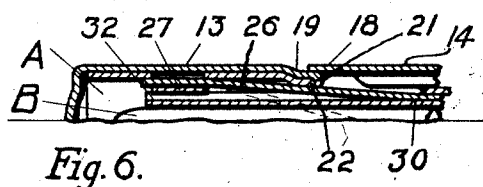


Fig. 6.

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# UNITED STATES PATENT OFFICE.

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## FOUNTAIN PEN.

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My invention relates to fountain pens where a sack of a flexible nature is employed to form a reservoir to keep a supply of ink in the fountain pen and to more particularly provide an assembled unit ink operating means which can be readily inserted or removed from the fountain pen barrel.

A feature of the invention resides in means connected together to provide a unit including a lever operated sack depressing means which is fully assembled before it is inserted into the pen barrel. This unit telescopes into the pen barrel in a manner so as to hold it rigidly in place for operation. When the lever is operated the ink sack is collapsed forcing air or ink out of the same and when the lever is released the vacuum in the sack will fill it with ink when the pen is inserted in an ink well.

The invention also further provides an extremely simple construction which makes up the sack operating unit wherein the unit is provided with a cylindrical supporting member having spring gripping ends, of a cylindrical shape, which are adapted to engage the inner wall of the pen barrel to hold the unit in operating position. The simplicity of the unit construction also resides in the use of a flat spring member which is adapted to operate to raise the depressing bar and operating lever into inoperative position away from the ink sack. Heretofore various springs have been used and all of these have been more or less of a complicated nature owing to the fact that they provide a curved or looped end on the spring which in operation of the lever is inclined to crack at the curve, thus making the spring ineffective and subject to severe strain in the operation of the filling lever. In my pen the flat straight nature of the spring permits it to move with the depressing bar and operating lever and yet provides a spring of sufficient resistance, so as to raise the operating bar from depressed position when the operating lever is moved into parallel relation with the barrel.

Heretofore the pivoting of the operating member has been a considerable problem in the endeavor to make a simple mechanism for operating the sack and it has not been easy to conceal the pintle for the operating lever so that it would give a neat and finished appearance to the pen. In my invention I have provided a unit construction with a pintle which is entirely concealed from the outside

when the unit is inserted in the barrel and the barrel assists in holding the pintle in operative position by engaging the ends of the same. This provides a construction which is easily assembled and which can be readily removed from the barrel so that the unit can be entirely replaced or repaired if it is desired. These features of my invention are all of marked importance, owing to the fact that my unit operating means is designed to be used particularly with fountain pen barrels made of gold, silver or other precious metal so that even if the sack operating unit becomes ineffective for any reason whatsoever it can be removed from the barrel and a new one inserted if it is desired.

Further the unit provides a larger opening for the sack and is easily inserted or removed from the barrel so that a large ink sack can be used in my fountain pen.

In the drawings forming a part of my specification

Figure 1 is a view of my fountain pen including my operating unit contained therein.

Figure 2 illustrates a portion of the fountain pen barrel showing my unit partially inserted in the open end of the same.

Figure 3 is a cross sectional central view illustrating a portion of the barrel and showing my sack operating unit fixed therein.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a perspective view of my sack operating unit removed from the fountain pen barrel.

Figure 6 is a detail of a portion of the barrel and unit showing an alternative construction.

In the drawings A represents my fountain pen sack operating unit which is formed with a body portion 10 having cylindrical shaped spring ends 11 and 12 which are adapted to engage within the fountain pen casing 13 in a manner so as to hold the unit A in operative position in the fountain pen barrel.

The unit A is provided with an operating lever 14 which is pivotally held to the body 10 by the pintle 15 between the lugs 16 which are formed in the body 10 by depressing and shaping the same in a manner so that the lugs will not project above the circumference of the body portion 10 of the unit A.

The pin or pintle 15 extends through the lugs 16 and the depending side walls 17 of the lever 14 in a manner so that when the unit A is

inserted into the barrel 13 the ends of the pin 15 will approximately engage with the inner surface of the barrel 13 and which forms a stop for either end of the pin or pintle 5 15 to hold it in operating position.

This construction permits a pintle of a rod like nature to be used without a shoulder on the end if it is desired. Obviously the pin can be shouldered on its ends if it is inserted 10 in operating position as is illustrated in Figure 4.

The operating lever 14 is provided with an engaging end 18 which rests in the depression 19 formed in the casing 13 of the fountain pen 15 barrel. When in inoperative position, the end 19 of the lever 14 assumes the position illustrated in Figure 3. When the unit A is forced into the barrel or casing 13 as illustrated in Figure 2 the lever follows up onto 20 the portion 19 owing to its thin flat nature causing it to raise up by reason of the longitudinally extending slot 20 formed in the casing 13 and into position in the depressed portion 19.

When the unit A is moved into the proper position in the casing 13 the lever 14 is elevated and a tongue or stop member 21 may be bent downward to engagement against the edge 22 of the body 10 of the unit A in a manner so as to form a shoulder to hold the unit A in fixed position in the barrel 13, as illustrated in Figure 6. When it is desired to remove the unit when this shoulder 21 is used, it is bent upward to release the unit A whereupon by engaging it with a suitable instrument it can be readily removed. The shoulder 21 is not necessary to hold the unit A in the barrel 13 where the spring ends 11 and 12 grip the barrel sufficiently to hold the unit A in place in the barrel and the unit will operate without this shoulder in the same effective manner. The shoulder only being necessary where the unit is made of a nature so as not to grip the inner surface of the case 13 45 with a large degree of friction.

The body of the cylinder 10 is cut away at 24 centrally between the ends so that the gripping jaws 11 and 12 operate more readily to engage and hold the ends of the cylinder 50 10 in rigid position in the case 13 of the pen. The hollow nature of the cylinder 10 of the unit A is such as to permit a very large ink sack to be passed through the same when it is held in the fountain pen casing thus permitting a larger quantity of ink to be stored in the ink sack B. In the drawing applicant has exaggerated the sizes even more than they naturally would be because it is necessary to do this to make a clear showing of the parts 60 but in reality the mechanism of the unit A is quite small, which leaves a very large opening through the same.

The unit A is provided with a channel shaped sack depressor bar 25 which is held to 65 the cylinder 10 by the flat spring 26 which is

attached on one end at 27 by the portion of the cylinder 10 which is cut out to form the opening 28 so as to permit the end 27 of the spring to pass between a portion of the cylinder 70 formed by cutting and depressing the portion out of the portion 28. The other end of the spring 26 is secured at 29 by the ears 30 formed on each side of the depressor bar 25. These ears 30 are bent inwardly to firmly grip the end 29 of the flat spring 26. 75

The formation of the flat spring 26 is perfectly flat in its natural state and when it is secured at its ends 27 and 29 it is caused to extend at an angle so that the natural tendency of the spring is to raise and draw the depressor bar 25 up against the side walls 17 of the operating lever 14 and in this manner the flat spring 26 draws the depressor bar 25 away from the sack B allowing the same to expand and by vacuum fill itself with ink when it is 85 operated. The flat straight nature of the spring 26 permits a strong acting spring to be used which occupies only a small amount of space in the unit construction A.

It is a very important feature of the invention to provide the unit operating assembly A 90 which is of a simple inexpensive construction and wherein the straight flat spring member 26 is employed to operate the depressor bar. The operation of the lever 14 moves the lever 95 downward against the sack B as is illustrated in dotted outline in Figure 3 and the curved forward end 31 of the depressor bar 25 engages against the end of the sack B which is secured to the pen shank in the ordinary manner. The engagement of the end 31 against the comparatively stiff end of the sack B, owing to its connection with the pen shank, causes the rear end 32 to move downwardly approximately parallel with the ink sack 105 body B so as to equally depress the sack. The ease of assembling the operating unit A before it is inserted into the barrel is apparent and by reason of the fact that the same is easily positioned within the casing 13 or removed from the same it is evident that the construction is of such importance as to provide a simple, practical and very desirable unit for fountain pens of the nature described. 115

The operating lever 14 is held by the pintle 15 between the lugs 16 and is provided with a squared end 34 which engages against the depressor bar 25 in a flat manner so that the squared end forms a flat like shoulder which 120 holds the lever 14 in an upright position rigidly, to hold the depressor bar 25 pressed tightly against the sack B as is illustrated in dotted outline in Figure 3.

The lever 14 is provided with edges 35 125 formed on the lower ends of the depending side walls 17 which extend approximately at right angles to the shoulder squared end 34. The edges 35 are adapted to engage flat against the bar 25, as illustrated in Figure 3, 130

when the operating lever 14 is in inoperative position and when the depressor bar 25 is held against the edges 35 by the spring 26. In this manner the edges 35 form a flat shoulder engagement which holds the lever bar under the tension of the spring 26 out of operating position.

In accordance with the patent statutes I have described the principles of operation of my invention and have illustrated in the drawings a single construction which I desire to have it understood is only illustrative and that the invention can be applied to uses other than those above set forth and carried out by other means within the scope of the following claims.

I claim:

1. A fountain pen sack operating unit including, a cylindrical body portion, an operating lever pivoted thereto, a sack depressor bar extending through said cylindrical body and flat straight spring means connecting said depressor bar with said body in a manner to permit the same to be operated by said operating member to compress the ink sack in a fountain pen.

2. A fountain pen sack operating unit removably positioned within the fountain pen barrel including, an operating lever pivoted to said unit, a sack depressor bar disposed below said operating lever, a flat spring connected to said bar, operable with said lever to hold the lever adjacent to the bar and means for collectively holding said bar, spring, and operating lever together in a manner to be easily inserted or removed from the fountain pen barrel.

3. A unit fountain pen operating means comprising, a cylindrical portion having spring gripping jaws formed on the end thereof, an operating lever pivotally connected to said cylindrical portion, a sack depressing bar extending through said cylindrical portion and spring means extending approximately straight from end to end and adapted to connect said cylindrical portion and depressor bar in a manner so that said depressor bar is held under spring tension against said operating lever at all times.

4. A fountain pen sack operating unit, including elongated cylindrical means adapted to hold an operating lever, a depressor bar and spring connecting means together to form a removable unit in a fountain pen barrel.

5. A fountain pen having a barrel, an operating unit providing a member adapted to frictionally engage said barrel in a manner to hold the unit removable within said barrel so that when the same is removed said barrel is entirely empty, said operating unit being operable in or out of said barrel.

6. A fountain pen having a barrel, a longitudinal slot formed in said barrel, a remova-

ble sack operating unit held frictionally within said barrel in a manner to permit said unit to be operable in said barrel and operable out of said barrel whereby the unit may be inserted or removed from said barrel in a collective state.

7. A fountain pen sack depressor unit removably held in the fountain pen barrel including a cylindrical member, a longitudinal slot formed in said member, an operating lever, parallel side walls formed integral with said cylindrical member, adjacent the edge of said slot between and to which said operating lever is pivotally secured in a manner whereby the pintle of the pivot will engage the walls of the fountain pen barrel when the unit is inserted therein, a flat, approximately straight spring member secured on one end to said cylindrical member, a depressor bar extending thereto, said cylindrical member rigidly secured to the other end of said spring member beneath said operating lever in a manner to hold said depressor bar under spring tension against said operating lever.

8. A fountain pen sack operating unit including a cylindrical member having spring jaws formed on the end thereof, a longitudinal slot formed in said member, outwardly projecting side walls formed in the opposite edges of said slot, an operating lever pivotally secured to said walls, a channel shaped depressor bar and an approximately straight flat spring member adapted to hold said depressor bar under spring tension against said operating lever and connected to said cylindrical member whereby said depressor bar will be caused to follow into engagement at one end of said operating lever and to lie in close proximity thereto, to withdraw the same from depressing position upon the ink sack of the fountain pen.

9. A unit fountain pen sack operating means including a cylindrical member, spring gripping jaws formed on the end thereof and approximately circular in cross sectional shape, a channel shaped depressor bar extending into said cylindrical member, a spring member extending approximately straight and of a flat nature through its length, means for securing one end of said spring to said circular member and the other end to said depressor bar, a slot superimposed in said circular member to said depressor bar, and an operating lever pivotally positioned within said slot in a manner to cause one end thereof to engage against said depressor bar in a manner to move the same into operating position, said spring member withdrawing said depressor bar out of operating position and pressing against said operating lever under spring tension to hold the same in operative position.

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