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FILLING DEVICE FOR FOUNTAIN PENS

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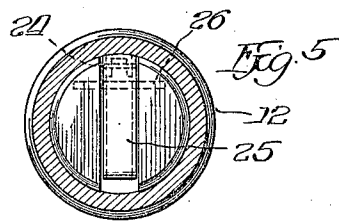
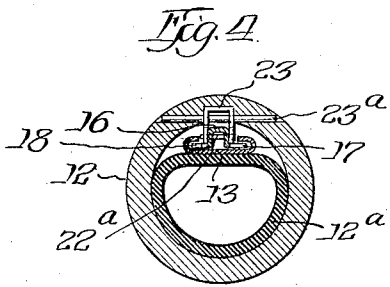
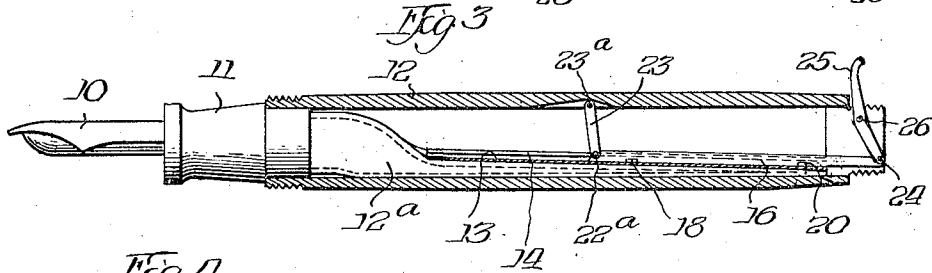
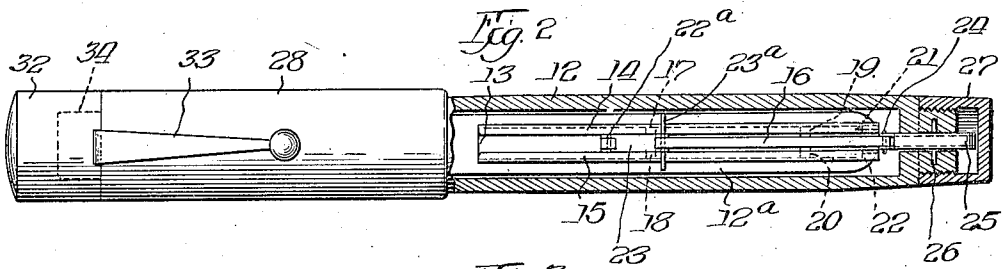
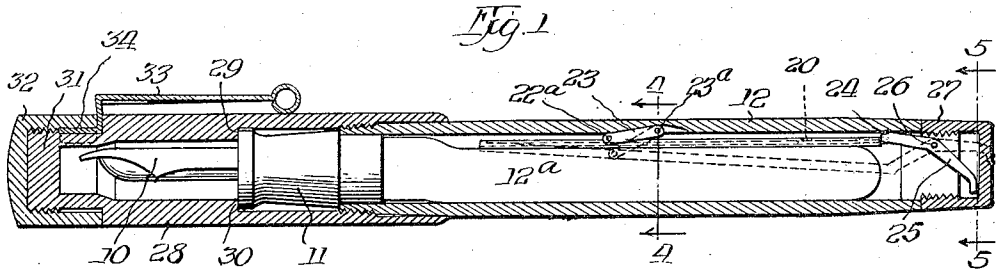


Fig. 6.

Witness:

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By Murray and Murray Attys

UNITED STATES PATENT OFFICE

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FILLING DEVICE FOR FOUNTAIN PENS

Application filed December 5, 1927. Serial No. 237,756.

Our invention relates to pens, and particularly to fountain pens of the self-filling type.

One of the most important objections to the fountain pens now presented to the trade, is that the ink sack is not properly and thoroughly filled and emptied, this because of the construction of the means for compressing the ink sack to expel old ink and prevent a vacuum.

Another objection to the usual fountain pen of the self-filling type, is that the filling lever is so located on the side of the pen barrel as to be in constant danger of being accidentally opened. Also, the opening provided for the filling clip permits the entrance of foreign matter and dirt, which in time finds its way into the sack chamber, causing trouble in the working parts.

Another objection to the pens now known is that the weight of the pressure bar against the ink sack is liable to release ink with the least rough handling.

However, the pen of our invention is intended to eliminate many of the common objections to the usual self-filling fountain pen.

The pen of our invention provides, primarily, a long pressure bar, contacting the ink sack for the greater part of its length and width, the lever for emptying and filling the sack being located at the upper end of the pen barrel, and is protected from movement and locked in position by a screw cap.

A further advantage of the pen of our invention is that when the sack is being emptied, the pressure bar assumes an angular position, and the rearward end of the sack is pressed first, in order that no ink will be trapped in the rear or upper end of the ink sack. Likewise, when the pen is being filled, the pressure bar permits the ink to fill the forward end of the sack first, leaving no space for air to enter, insuring rapid and efficient filling.

A still further advantage of the pen of our construction is that locking means are provided for the pressure bar, when either in an open or closed position, thus insuring safety in carrying the pen, as well as ease in filling.

The device will be more readily understood

by reference to the accompanying drawing, in which:

Fig. 1 is a longitudinal sectional view through a fountain pen constructed in accordance with our invention;

Fig. 2 is a top view, partly in section;

Fig. 3 is a longitudinal section of the barrel of the pen, showing the ink sack in depressed position;

Fig. 4 is a cross sectional view on the line 4—4 of Fig. 1;

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 1;

Fig. 6 is a cross sectional view of the upper end of the pressure bar, showing the stop members.

The device of our invention comprises the usual point 10, composition pen holder and plug 11, barrel 12 and sack 12^a. The filling device consists of the pressure bar 13, having flanges 14, 15 thereon and within the pressure bar is a slide bar or long link 16, adapted to slide within said pressure bar. Said slide bar is provided with two sets of wings, one set, 17, 18, at the lower end, and a pair 19, 20 at the upper end thereof. These four wings 17, 18, 19, 20 suspend the pressure bar at four points and prevent lateral movement thereof. At the upper extremity of the pressure bar 13, the flanges 14, 15 are closed by the stops 21, 22 for a purpose later to be described. The lower end of said slide bar 16, is pivotally secured by a pin 22^a to a short link 23, which is pivotally secured to the barrel at its upper end, by the pin 23^a. The upper end of said slide bar 16, is pivotally secured by a pin 24 to one end of a bell crank 25, said bell crank being pivotally secured to the barrel at 26.

The upper end of the barrel, as is best illustrated in Fig. 3, is reduced, and provided with screw threads, for the reception of the internally threaded cap, 27. The purpose of the cap 27 is to cover the bell crank 25, when it is in its closed position.

In the construction of the device above described, care is taken to provide a distance between the stationary pivots 26 and 23^a, less than the distance between the movable pivots 22^a and 24. In this feature lies an important feature of our invention. By so arranging

the distance between the pivots, we are able to secure a positive locking action of the pressure bar, in a closed position, as will be more carefully described later.

5 The operation of the device herein described is as follows. Assuming the pen is in the closed or locked position of Fig. 1, the bell crank 25 is lifted, thus bringing down the pivot 24, so that the pressure bar 13, and
10 slide bar 16, carried thereby, assume the dotted line position shown in Fig. 1.

Thus it is seen that the rear or upper end of the ink sack is depressed first, thus forcing the air and ink out of the closed end of the sack, preventing a vacuum.

15 When the pressure bar reaches the position shown in Fig. 3, it has reached the limit permitted by the link 23, and further movement upward, of the bell crank, would draw the pressure bar past its center, toward the bell
20 crank, thus causing abrasion of the sack, and possible injury to the closed end of the sack. To prevent movement of the pressure bar, the slide bar is provided, which is permitted to
25 slide inside of the pressure bar, when in the position of Fig. 3. As soon as the link 23 passes beyond a vertical line through the pivot 26, then the parts will again be in a
30 locked position, and remain so until the bell crank is moved downward.

The stops 19, 20, 21, 22 are so positioned that as the bell crank is moved to the position of Fig. 3, if the pressure bar is too far forward, it will be pulled backward, thus preventing possible injury to the lower end of
35 the sack at the point of engagement thereof with the hard rubber neck.

When the sack is being filled, the forward end will be open in advance of the closed end, thus permitting rapid and efficient filling, and
40 no entrapment of air in the sack.

One of the most important advantages in providing the locking feature above described is that the weight of the pressure and slide bar is lifted and held off of the sack, so that, in moving or striking the pen, the sack
45 will not be depressed.

Thus it is seen that we have provided a self filling fountain pen that is absolutely efficient, self locking, leak-proof, and dirt-proof. Our device has provided all of the advantages of other fountain pens of similar type, and has eliminated the usual disadvantages and shortcomings of such pens.

55 While the illustrations properly disclose our invention, modifications and variations may be made within the skill of the mechanic without departure from the spirit of our invention, and we do not wish to be limited except as indicated in the appended claims.

We claim:

60 1. Apparatus for filling a fountain pen, comprising in combination, a barrel, an ink sack within said barrel, a pressure bar, a non-resilient link pivotally connecting said pres-

sure bar with said barrel, and a bell crank, said bell crank being pivotally secured to the upper end of said pressure bar.

2. In a fountain pen, the combination with the barrel and ink sack, of a pressure bar
70 within the barrel and adapted to contact said sack, a link having a fixed pivot in said barrel, said link connecting the bar to the barrel at a point between the ends of the bar, a bell
75 crank having a fixed pivot in said barrel and pivoted to the bar, a free arm of the bell crank projecting outside of the limits of the barrel, the distance between the fixed pivot points of the link and the bell crank being such that when the parts are moved into inoperative
80 position the movable pivot points of the bell crank and bar will move past the center and act as a lock.

3. The combination with a fountain pen barrel and compressible sack therein, of a bar
85 adapted to contact said sack, a nonresilient link pivotally connected to the barrel and to the bar at a point near the lower end of the bar, and a bell crank pivoted to the barrel and to the upper end of the bar, the link, the bar, and
90 one arm of the bell crank being adapted to lie in substantial parallelism when the bar is in retracted or inoperative position; the other arm of the bell crank being positioned to project outside of the end of the barrel whereby
95 upon oscillation of the bell crank the bar is pressed downward at its upper end to a substantial extent before the lower end of the bar begins its downward movement.

4. Apparatus for filling a fountain pen,
100 comprising in combination, a barrel, an ink sack within said barrel, a pressure bar, a link pivotally connecting said pressure bar with said barrel and a bell crank pivotally secured to the upper end of said pressure bar, said
105 link, bar and bell crank being so disposed within said barrel that the cooperation of said parts when in a closed position serves to position the pivot of said link past its center and thereby lock the same.

5. Apparatus for filling a fountain pen, comprising in combination, a barrel, an ink sack within said barrel, a pressure bar, a link
110 pivotally connecting said pressure bar with said barrel, and a bell crank pivotally secured to the upper end of said pressure bar, said link, bar, and bell crank being so disposed within said barrel that the cooperation of said parts when in an open position serves to position the pivot of said link past its center and
120 thereby lock the same.

6. Apparatus for filling a fountain pen, comprising in combination, a barrel, an ink sack within said barrel, a pressure bar, a link
125 pivotally connecting said pressure bar with said barrel, a bell crank, said bell crank being pivotally connected at a point between the ends thereof to the upper end of the barrel, one arm of said bell crank projecting beyond the end of said barrel, and the other arm piv-
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otally connected to the upper end of said pressure bar, and a cap on the upper end of said barrel adapted to overlie said projecting arm and prevent the same from movement when in an inoperative position.

5 In testimony whereof we have affixed our signatures.

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