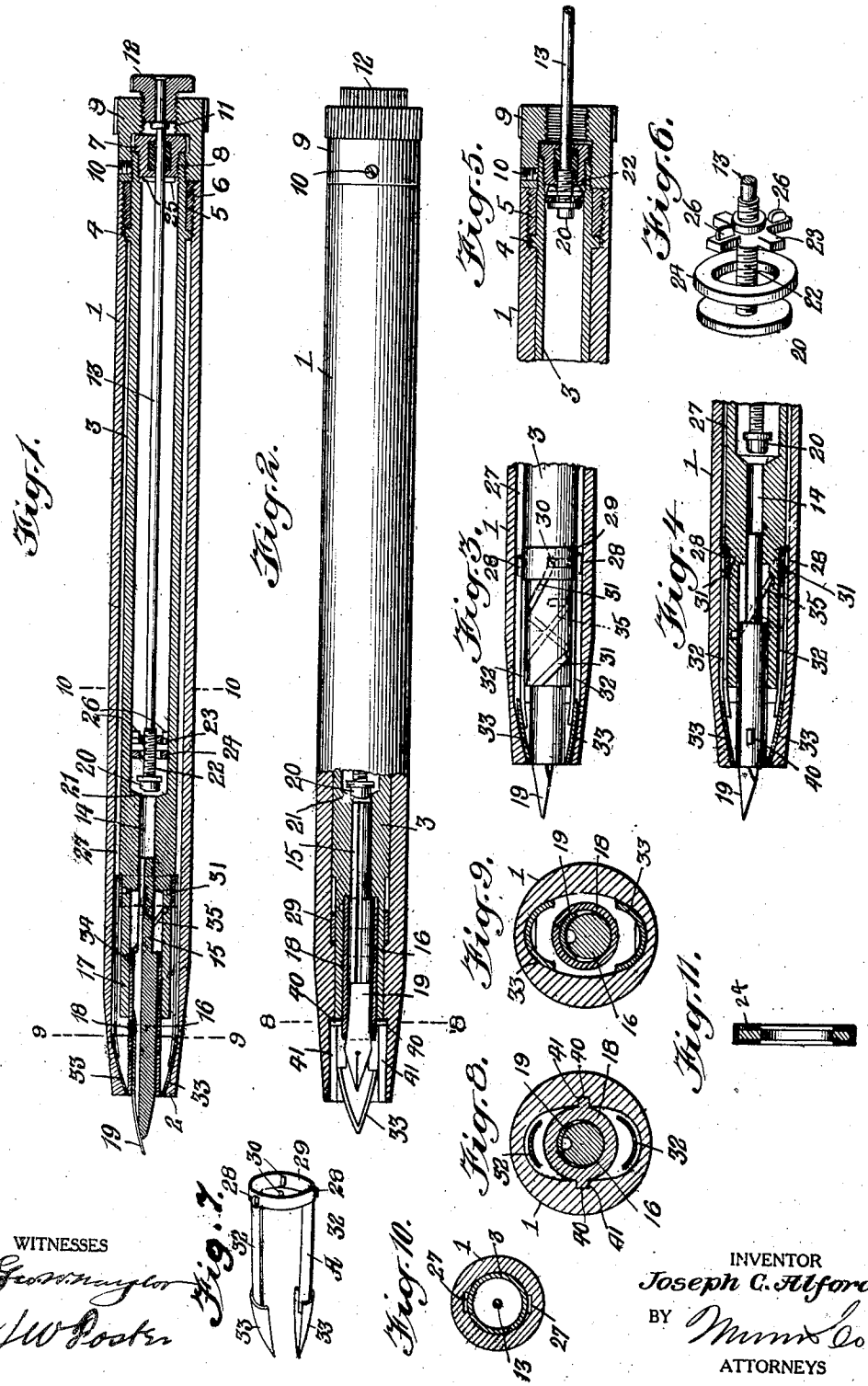
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J. C. ALFORD

FOUNTAIN PEN

Filed March 5, 1925



WITNESSES

INVENTOR

Joseph C. Alford

BY

ATTORNEYS

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UNITED STATES PATENT OFFICE.

JOSEPH CHURCHILL ALFORD, OF MABEN, MISSISSIPPI.

FOUNTAIN PEN.

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To all whom it may concern:

Be it known that I, JOSEPH C. ALFORD, a citizen of the United States, and a resident of Maben, in the county of Oktibbeha and State of Mississippi, have invented a new and Improved Fountain Pen, of which the following is a full, clear, and exact description.

This invention relates to fountain pens, an object of the invention being to provide a fountain pen in which the pen holder and pen are moved within the casing and covered or enclosed by a shield, the operation of which is automatic with the movement of the pen. In other words, when the pen is projected the shield is separated and withdrawn and when the pen is withdrawn the shield is projected and closed.

A further object is to provide a fountain pen of the self-filling type with improved construction of piston and improved operating means therefor.

A further object is to provide a fountain pen which will be leak-proof, which will be protected from dirt and contact with the pocket of the user, and which embodies various improvements in the art as it is now known.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a view in longitudinal section through my improved pen showing the pen projected and in operative position;

Figure 2 is a view partly in elevation and partly in longitudinal section showing the pen withdrawn and covered by its shield;

Figure 3 is a fragmentary view showing the casing and the shield in section and the other parts in elevation;

Figure 4 is a fragmentary view showing the casing, barrel and shield in section and the pen holder in elevation;

Figure 5 is a fragmentary view in longitudinal section showing the manner of bringing the piston elements into proper assemblage;

Figure 6 is a perspective view of the piston elements when assembled;

Figure 7 is a perspective view of the pen shield;

Figure 8 is a view in transverse section on the line 8—8 of Figure 2;

Figures 9 and 10 are views in section on the lines 9—9 and 10—10, respectively, of Figure 1;

Figure 11 is a view in section through the piston ring.

1 represents the casing of my improved fountain pen. This casing 1 is cylindrical throughout the greater portion of its length but at its forward end is tapered as shown at 2. The casing 1 encloses an ink barrel 3 which is of general cylindrical form and which has an annular flange 4 adjacent its rear end. An externally threaded sleeve 5 fits the outer end of the barrel and is screwed into the casing, as indicted at 6, and against the flange 4 so as to hold the barrel against longitudinal movement but permit it rotary movement.

A stuffing box 7, constituting a threaded plug, is screwed into the end of the barrel 3, as shown at 8, and a milled collar 9 is screwed onto the end of the barrel 3, abuts against the casing 1 and is fixedly secured by a jam screw 10 projected through the collar and against the barrel. The collar 9 has an internally threaded portion 11 to receive an externally threaded plug 12, the latter being also milled or roughened to facilitate its turning. This plug 12 is fixedly secured to a piston rod 13 which projects through the stuffing box 7 into the ink barrel, as shown.

The forward end of the ink barrel has a restricted ink passage 14 into which the reduced end 15 of a longitudinally grooved feed bar 16 is guided. The barrel 3 has at its forward end a cylindrical extension 17 enclosing the inner portion of the feed bar and also receiving a sleeve 18 around the feed bar. The pen 19 is securely held against the feed bar when projected between the same and the sleeve 18, as clearly shown.

On the extreme inner end of the rod 13 an enlargement 20, constituting a valve, is provided and is adapted when the plug 12 is screwed all the way in to close against a seat 21 and prevent the passage of the ink through the restricted portion 14.

The end of the rod 13 adjacent the valve 20 is screw-threaded as shown at 22, and on this threaded portion 22 a spider 23 has screw-threaded engagement, and between

the spider 23 and the valve 20 a piston ring 24 is mounted which fits the barrel 3 but has a central opening necessarily larger than the rod 13.

On the inner end of the stuffing box 7 I provide lugs 25 between which projections 26 on the spider 23 are adapted to be positioned to hold the spider against turning movement when drawn to the position shown in Figure 5.

The casing 1 has longitudinal grooves 27 which receive laterally projecting keys 28 on a ring 29 which constitutes a portion of my improved shield A. The position of these keys 28 and the grooves 27 prevent turning movement of the shield, but said ring is also formed with inwardly projecting keys 30 which engage in spiral grooves 31 in the cylindrical barrel extension 17 so that when the barrel is turned a longitudinal movement is imparted to the ring 29. This ring 29 has a pair of forwardly projecting spring arms 32 carrying semi-conical plates 33 at their forward ends, which when projected forwardly engage the tapering forward end of the casing 1 and move toward each other to enclose the pen, as shown in Figure 2.

The sleeve 18 around the pen and pen holder is formed with a key or keys 34 to move in spiral grooves 35 in the cylindrical barrel extension 17 so that when the barrel is revolved the pen holder and the pen are projected or withdrawn as the case may be. The grooves 31 are oppositely coiled so that when the pen is projected, the shield A is withdrawn and when the pen is withdrawn, the shield A is projected. Hence, when the pen is in its outward position, the shield is in the casing, and when the pen is moved inwardly the shield functions to cover the pen and the forward end of the pen holder.

Turning movement is imparted to the barrel by manual manipulation of the collar 9. When the pen is not desired for use the valve 20 can be moved against its seat 21 to prevent the possibility of leakage.

To fill the pen the operation is as follows:

The rod 13 is drawn outwardly which will cause the enlargement 20 to engage the ring 24 and move it against the spider 23, forming a suction plunger which will suck the ink into the barrel. When it is desired to clean out the barrel and impart a reciprocating movement to the plunger, the operation will be as follows: The plug 12 is unscrewed to release it from the cap 9, and the rod 13 is drawn outwardly until the spider 23 is against the inner end of the stuffing box 7 when the lugs 26 will engage the lugs 25 and the spider will be held against turning movement. While in this position the rod 13 is turned so as to screw the rod through the spider and draw the enlargement 20 against the ring 24 and compress the ring between the enlargements and the spider, thus forming a complete piston or plunger. The rod is then moved inwardly so as to move the piston in a direction to expel the air, which is a movement toward the nib end of the pen.

In filling, the pen is inserted in the ink and the piston is drawn rearwardly, sucking the ink into the barrel and again bringing the piston assemblage to the position shown in Figure 5. The operator can turn the rod 13 to move the enlargement 20 away from the spider 23, thus disassociating the assemblage, and when disassociated the plunger can be pushed inwardly without ejecting the ink. The pen is projected or withdrawn by turning the cap or collar 9, and, as above explained, when the pen and pen holder are withdrawn the shield moves so as to enclose the pen, and when the pen is projected the shield is withdrawn through the medium of the keys and grooves such as above explained.

The sleeve 18 has laterally projecting pins 40 which move in longitudinal grooves 41 in the casing 1 to prevent turning of the sleeve.

Various slight changes and alterations might be made in the general form of the parts described without departing from my invention, and hence I do not limit myself to the precise details set forth but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A fountain pen including a casing, an ink barrel mounted to turn in the casing, a pen holder movable longitudinally relative to the barrel, a shield in the casing movable longitudinally relative to the casing, and means operated by the turning movement of the barrel to project and contract the shield so as to enclose the pen when the latter is withdrawn, and other means causing the pen to be projected by the rotary movement of the barrel and at the same time compelling the shield to be withdrawn.

2. A fountain pen, including a casing, a barrel having rotary mounting in the casing, a pen holder having longitudinal movement relative to the barrel, a shield around the outside of the barrel and pen and comprising a pair of semi-conical plates, a ring, and arms connecting the plates and ring, keys on the ring engaging in spiral grooves in the barrel, keys on the pen holder mounted in oppositely disposed spiral grooves in the barrel whereby when a rotary movement is imparted to the barrel the pen holder and shield will be withdrawn and projected, said casing having a tapering forward end whereby the shield members will be moved toward each other to enclose the pen and forward end of the pen holder when the latter is

withdrawn, said shield being withdrawn when the pen holder and pen are projected.

3. A fountain pen, including a casing, a barrel having rotary mounting in the casing, a pen holder having longitudinal movement relative to the barrel, a shield around the outside of the barrel and pen and comprising a pair of semi-conical plates, a ring, and arms connecting the plates and ring, keys on the ring engaging in spiral grooves in the barrel, keys on the pen holder mounted in oppositely disposed spiral grooves in the barrel whereby when a rotary movement is imparted to the barrel the pen holder and shield will be withdrawn and projected, said casing having a tapering forward end whereby the shield members will be moved toward each other to enclose the pen and forward end of the pen holder when the latter is withdrawn, said shield being withdrawn when the pen holder and pen are projected, said pen holder having a grooved reduced portion telescoping in a reduced outlet duct in the end of the barrel.

JOSEPH CHURCHILL ALFORD.