

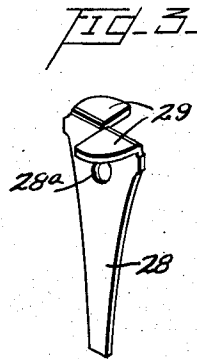
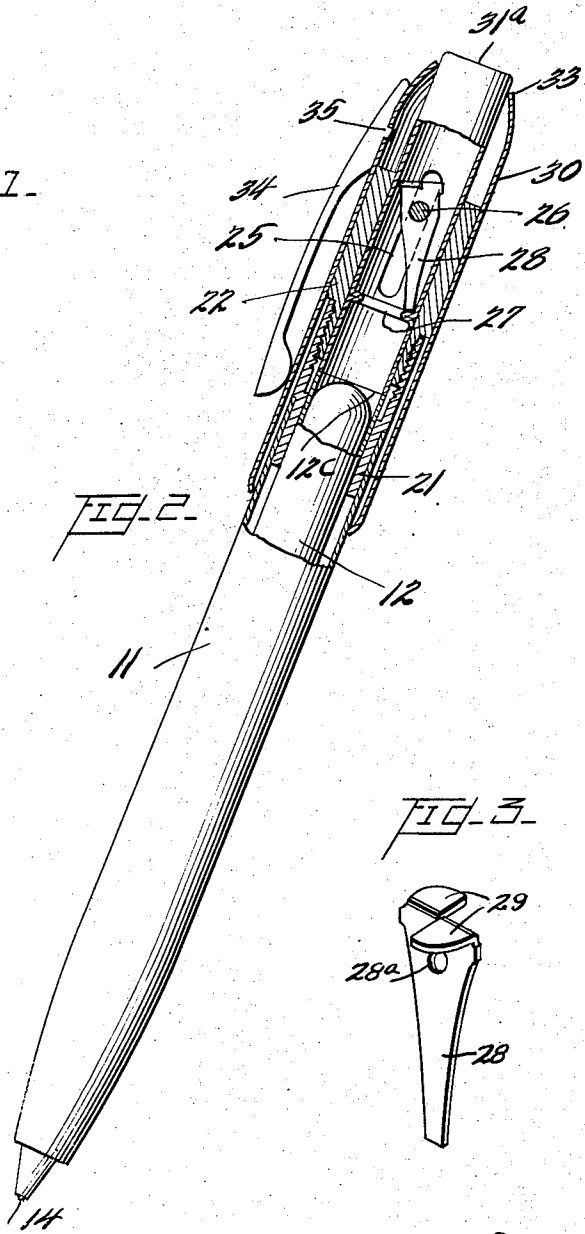
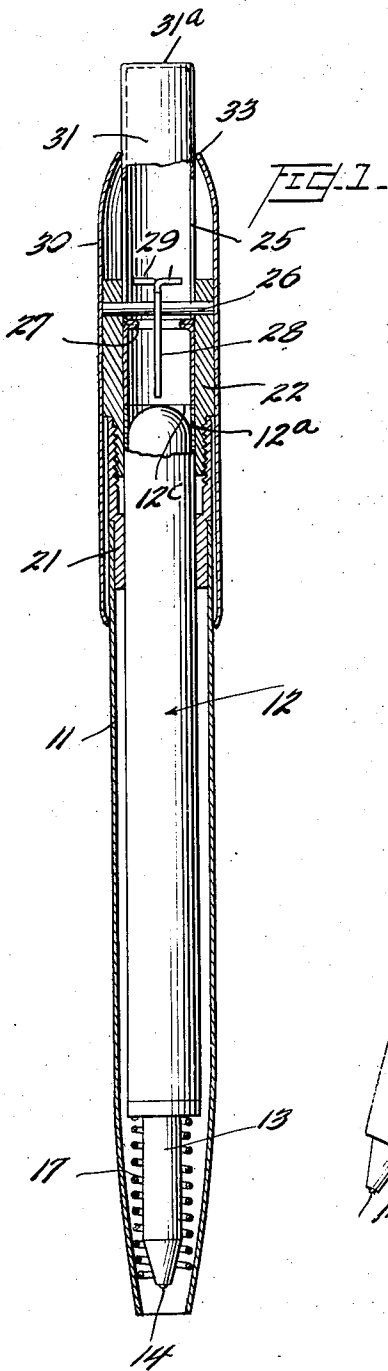
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FOUNTAIN PEN WITH PROTRACTABLE AND RETRACTABLE POINT

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2 Claims. (Cl. 120—42.03)

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This invention relates to writing instruments and more especially to fountain pens provided with a ball writing point. One important object of the present invention is to provide simple and efficient means for protracting and retracting the writing point of a pen of the character set forth.

A further object of the present invention is to provide a cap member which is fitted on the upper end of the barrel, said cap having an open upper end through which an upper sleeve member is slidable, said upper sleeve member having a closed upper end to which pressure may be applied, as by the thumb of the hand, to bring the writing point into a protracted writing position.

Another object of the present invention is to provide unique latching means in connection with the structure herein set forth for holding the writing point in a protracted position, said latching means being operative upon the tilting of the barrel, and inoperative upon the barrel being held in a vertical position.

Fig. 1 is an axial section through the fountain pen, the writing point being shown in the retracted position;

Fig. 2 is an axial section at right angles to the section shown in Fig. 1 but showing the writing point in a protracted position; and Fig. 3 is a perspective view of the pawl.

As shown in the drawing, the metal connector or bushing 21 is press-fitted into the shell or barrel 11 which is preferably a metallic barrel. The bushing 22 is assembled with the sleeve 31, said bushing being tightly press-fitted into the cap 30. The upper sleeve portion 31 is provided with opposed longitudinal slots wherethrough extends a pin 26, said pin being fixed at its ends in the bushing 22. The sleeve portion 31 which extends outwardly beyond the end of the cap 30 is provided with an inwardly extending rib 27 preferably annular in form. Mounted on the pin is an unbalanced pawl provided with segmentally-shaped lugs or ears 29. The unit comprising the bushing 22, the sleeve 31 with its interior rib 27, the pin 26, and the pawl 28 is assembled within the cap by inserting the end 31_a of the upper sleeve 31 into the lower and wider open end of the cap 30 and the bushing is tightly press-fitted into the upper end of the cap; the latter being tapered as shown.

The bushing 22 is held firmly in the interior of the cap 30 but the upper sleeve 31 is slidably mounted interiorly of the cap 30 and through the open end thereof and the upper end of the sleeve is always in a protruded position as shown in Figs. 1 and 2. The upper sleeve 31 on actuation moves the lower sleeve member or collar 12_a and brings the pen writing point into a protracted writing point position. The bushing 22 is interiorly threaded for engagement with the interior threads on the connector bushing 21, the latter being provided with complementary in-

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terior threads. The bushing 22 carrying the upper sleeve 31 is press-fitted interiorly of the cap 30. The cap with this unit is assembled on the barrel 11 by screwing the bushing 22 into the connector bushing 21. It is best that the assembly be made while the ball point is held in its retracted position by the spring 17. After assembling the pen elements in the position shown in Fig. 1, the protracting of the cartridge 12 and the writing point 14 is effected by manually depressing the sleeve 31_a to thereby force the cartridge downwardly against the resistance of the spring 17. The sleeve portion 31 is provided with opposed longitudinally extending slots 25 wherethrough extends a pin 26, said pin being fixed at its ends in the member 22. The sleeve 31 is provided with an inwardly extending rib 27 preferably annular in form.

On the pin 26 is mounted a pawl 28 preferably formed from a piece of sheet metal and having its upper ends cut and bent to form opposed segmentally-spaced portions 29 which fit loosely within the sleeve 31 but which limits the transverse stroke of the pawl on the pin. These segmentally-shaped lugs 29 form means for limiting the transverse stroke of the pawl on its supporting pin. If the pawl were permitted to move in either direction on its supporting pin to the wall of the sleeve 31, the pawl would become engaged with the latching rib 27. For example, if the pawl 28 were not provided with the lugs 29 or equivalent means, it would be possible when the pin was transferred from a tilted position to a vertical position for the pawl 28 to be latched against the latching rib 27, and then if pressure were applied by the finger or equivalent means to the sleeve 31, the pawl would not be in a released position and the spring 17 could not move the cartridge and the ball point in a retracted position. The lower end of the pawl is tapered to a square end and swings freely so as to engage over the upper surface of the rib 27.

As will be seen when the pen is held in a vertical position, pawl 28 will hang vertically from the pin 26 and the spring 17 will keep the cartridge and the ball point retracted. When the ball point 14 is projected by holding barrel 11 tightly in the hand of the operator and pushing downwardly on the button 31_a and the pen tilted to approximately the position shown in Fig. 2, the pawl 28 will retain its vertical position and engage the upper surface of the rib 27 and thereby latch or hold the writing point in a protracted position for writing.

It will be understood that the ball point may be protracted while the pen is held in a tilted position at which time the pawl 28 will immediately lock the ball point in protracted position as soon as the pawl is able to engage over the upper surface of the rib 27. It will thus be clear that the ball point may be protracted when the pen is held either vertically or tilted. In normal

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neutral operation, the fountain pen as shown in Fig. 1 with the point retracted, will be tilted to the position shown in Fig. 2, and then pressure will be applied against the sleeve 31, and the writing point will then be protracted and stay protracted because of the engagement of the pawl 28 with the latching rib 27. When it is desired to release the locking mechanism and retract the writing point, the pen is brought to a substantially vertical position and a slight pressure is applied to the sleeve 31 whereupon the pawl 28 will disengage from the latching rib 27 whereupon when pressure on the sleeve 31 is released, the spring will retract the cartridge and the writing point 14.

It is desired to point out that the lower end surface of the pawl 28 is at right angles to the major axis of the pawl to provide a flat surface so that said lower edge will firmly engage the upper surface of the rib 27. Then, there is no danger of the pawl 28 slipping from the retaining rib 27 and allowing the point to be retracted.

It is, therefore, clear that the pawl is provided with unbalancing means so that upon tilting of the pen barrel from the vertical, the pawl automatically swings or rocks on its pivot and engages its cooperating element, the latter cooperating with the pawl to hold the writing point in a protracted writing position. There is provided cooperating means which are operative upon tilting of the barrel to hold the writing point in a protracted position, and inoperative to hold the point in its protracted position upon the barrel being held in a vertical position. It is desired to point out that the pawl 28 may be unbalanced by having the mass and/or weight of the pawl above the pivoting or rocking point of the pawl 28 greater than the mass and/or weight below the pivoting point 28a.

It is to be noted that the pawl member is provided with opposed flanges engageable against the sides of the upper sleeve member whereby to limit transverse movement of the pawl on the pin. The pawl 28 is preferably formed from a piece of sheet metal and, therefore, can be cheaply manufactured in quantity. The locking pawl when out of engagement with its cooperating rib member centralizes on the pin principally due to the weight of the locking pawl. The locking pawl then is in unlatched position to thereby permit the pawl tip to be urged and inserted by the spring 17 into a retracted position where it is not available for writing purposes.

What is claimed is:

1. In a pen, a barrel, a bushing including a first portion having substantially the same outside diameter as said barrel, said bushing being provided with a threaded interior, a reduced diameter portion projecting from said first portion and snugly seated in said barrel, a second bushing provided with a threaded section arranged in engagement with the threaded portion of said first bushing, a cap snugly positioned over said second bushing and embracing a portion of said barrel, there being an opening in the outer end of said cap, a sleeve extending through said opening and into said cap, said sleeve being provided with a pair of diametrically opposed longitudinally extending slots, a pin extending through said slots and having its ends secured to said second bushing, said sleeve being provided with an inwardly extending rib of annular configuration, an unbalanced pawl mounted on said pin and provided with a plurality of segmentally shaped ears, the upper end of said cap being tapered inwardly and slidably receiving said sleeve, a portion of said sleeve extending beyond said cap when said sleeve is respectively in a retracted and extended position, a collar mounted within said barrel and having its upper end abutting said sleeve, a cartridge within said barrel and having its upper end projecting into said collar, the lower end of said barrel being tapered, a reduced tubular member extending from said cartridge and slidably mounted in the lower tapered portion of said barrel, said tubular member being provided with a writing element and resilient means mounted on said tubular member; said pin being disposed above said rib; said sleeve, collar, cartridge, and writing element being slidably mounted for respective movement to said extended and retracted positions, said pawl engaging said rib in the extended position of said writing element.

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pered inwardly and slidably receiving said sleeve, a portion of said sleeve extending beyond said cap when said sleeve is respectively in a retracted or extended position, a collar mounted within said barrel and having its upper end abutting said sleeve, a cartridge within said barrel and having its upper end projecting into said collar, the lower end of said barrel being tapered, a reduced tubular member extending from said cartridge and slidably mounted in the lower tapered portion of said barrel, said tubular member being provided with a writing element, and a coil spring circumposed on said tubular member; said pin being disposed above said rib; said sleeve, collar, cartridge, and writing element being slidably mounted for respective movement to their extended and retracted positions, said pawl engaging said rib in the extended position of the writing element.

2. In a pen, a barrel, a bushing including a first portion having substantially the same outside diameter as said barrel, a reduced diameter portion projecting from said first portion and snugly seated in said barrel, a second bushing provided with a section arranged in engagement with said first bushing, a cap snugly positioned on said second bushing and embracing a portion of said barrel, there being an opening in the outer end of said cap, a sleeve extending through said opening and into said cap and provided with a pair of diametrically opposed longitudinally extending slots, a pin extending through said slots and having its ends secured to said second bushing, said sleeve being provided with an inwardly extending rib of annular configuration, an unbalanced pawl mounted on said pin and provided with a plurality of segmentally shaped ears, the upper end of said cap being tapered inwardly and slidably receiving said sleeve, a portion of said sleeve extending beyond said cap when said sleeve is respectively in a retracted and extended position, a collar mounted within said barrel and having its upper end abutting said sleeve, a cartridge within said barrel and having its upper end projecting into said collar, the lower end of said barrel being tapered, a reduced tubular member extending from said cartridge and slidably mounted in the lower tapered portion of said barrel, said tubular member being provided with a writing element and resilient means mounted on said tubular member; said pin being disposed above said rib; said sleeve, collar, cartridge, and writing element being slidably mounted for respective movement to said extended and retracted positions, said pawl engaging said rib in the extended position of said writing element.

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