Jan. 1, 1963 P. WINCHELL 3,071,113

RETRACTABLE FOUNTAIN PEN

Filed Jan. 30, 1961 2 Sheets-Sheet 1

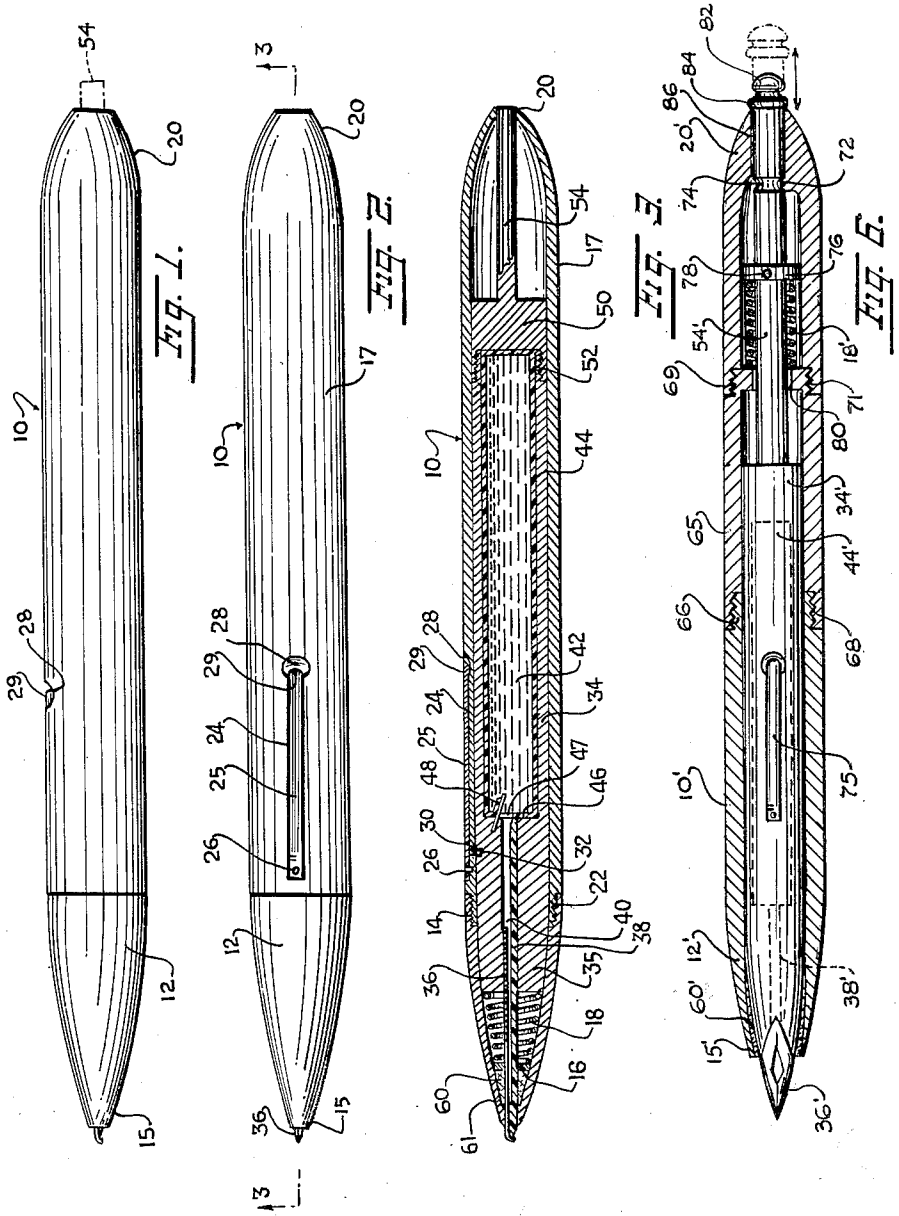

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 6.

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RETRACTABLE FOUNTAIN PEN

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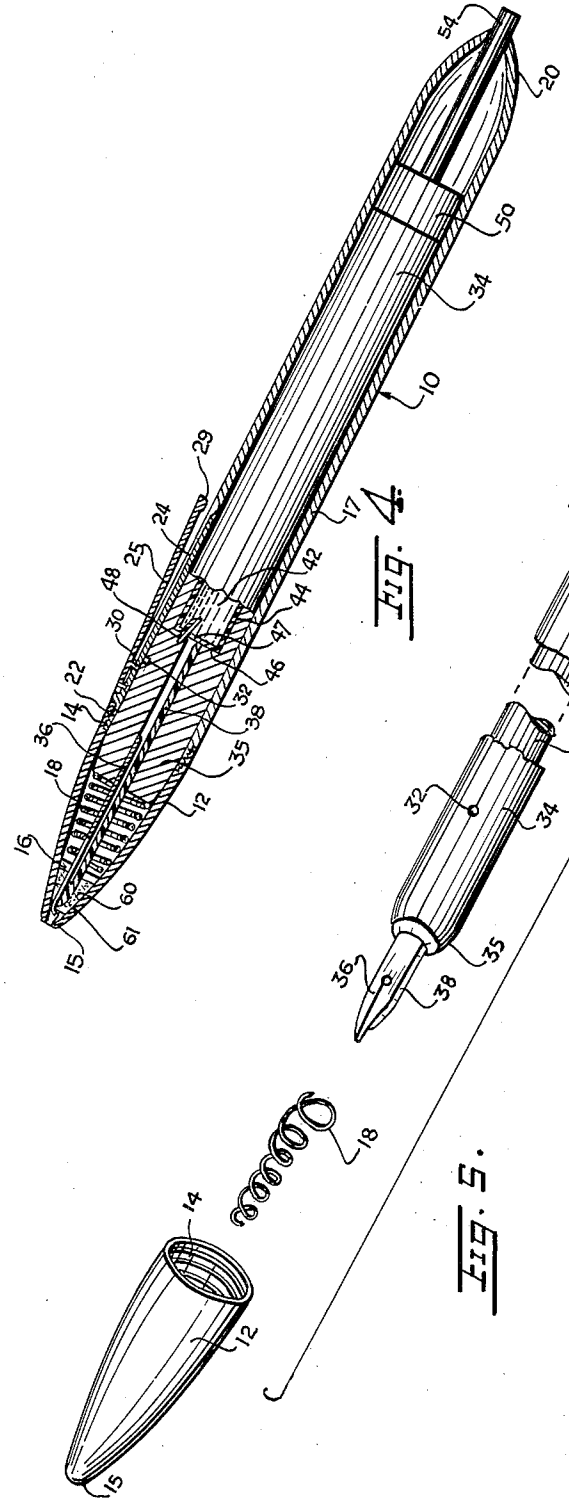

Fig. 4.

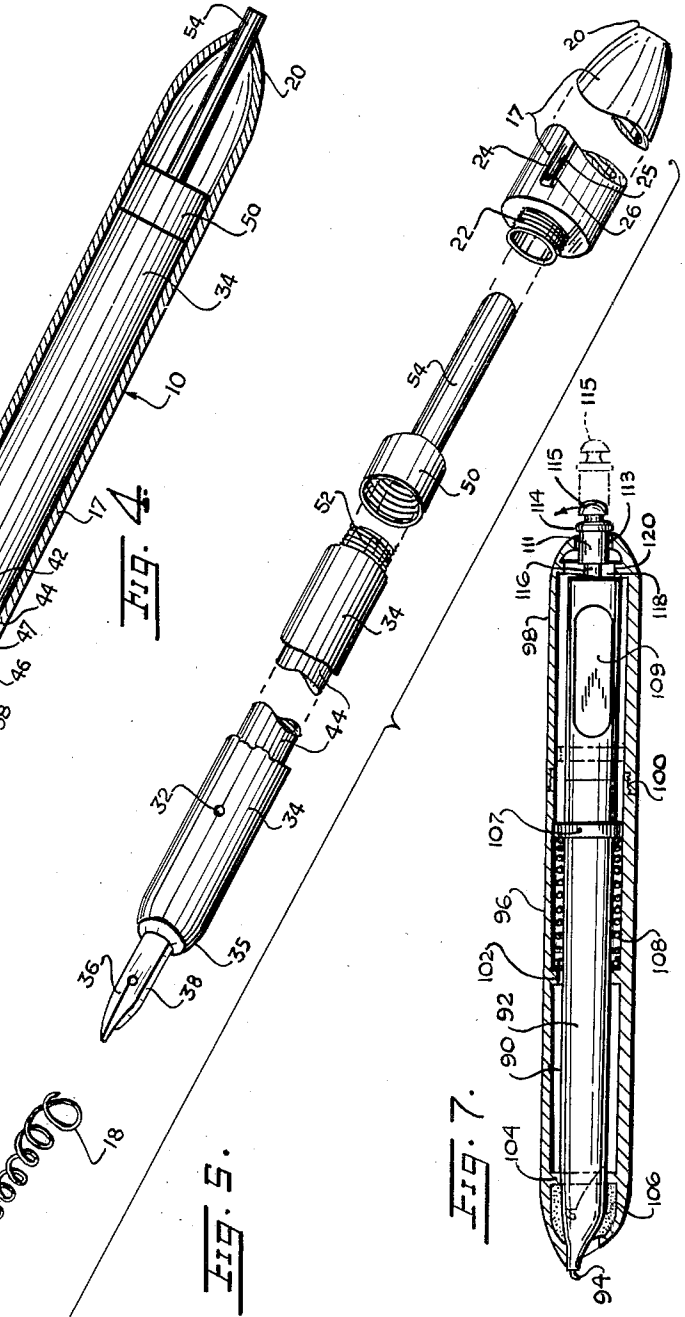

Fig. 7.

Fig. 5.

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RETRACTABLE FOUNTAIN PEN

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This invention concerns an improved fountain pen and more particularly a fountain pen having a retractable pen point.

According to the invention there is provided a fountain pen having a cylindrical barrel in which is slidably disposed a hollow cylindrical tube. In the tube is fitted a pen point and ink feeding stem. An ink filled cartridge is removably disposed in the tube and held there by a screw cap. The cap has an axially extending push button on its end extending beyond the barrel when the pen point is retracted into the barrel. A coil spring in the barrel biases the pen carrying tube to a retracted position. In order to hold the point extended, there is provided a latch element formed on a spring clip. This element engages in a hole in the tube to hold the tube in a forward position. The clip is normally disposed in a recess in the barrel so that the outerside of the clip is flush with the exterior of the barrel. When the clip is lifted, the latch element is disengaged from the tube and the pen point retracts into the barrel, while the push button becomes extended. Upon pushing the push button inwardly into the barrel, the pen point extends and the latch element engages the tubes at the same time that the spring clip retracts into the recess in the barrel. The tube containing the ink cartridge is provided with a prong at its inner end which pierces the ink cartridge to open a hole in one end and establish an ink supply to the ink feeding stem. When the screw cap is tightened on the tube initially after insertion of the ink cartridge, the prong at the inner end of the tube pierces the closed end of the ink cartridge.

It is therefore one object of the invention to provide a fountain pen having a retractable pen point fed with ink by an ink cartridge.

It is another object to provide a fountain pen of the character described, wherein a spring clip is instrumental in locking the pen point in extended writing position.

A further object is to provide a fountain pen of the retractable point type, in which a spring clip is recessed when the point is extended in writing position.

A still further object is to provide a retractable type of fountain pen or simplified structure which can be manufactured and assembled at low cost, which is durable, and whose several parts can be easily repaired or replaced when worn.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side view of a fountain pen embodying the invention, with the pen point extended.

FIG. 2 is another side view showing the pen rotated 90° from the position of FIG. 1.

FIG. 3 is a longitudinal sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is a sectional view similar to FIG. 3 showing the pen point in retracted position, with spring clip and push button extended, parts being shown in elevation.

FIG. 5 is an exploded perspective view of the unassembled pen, showing essential internal components thereof.

FIG. 6 is a view similar to FIG. 4 but showing a modified form of the invention.

FIG. 7 is view similar to FIG. 6, showing another modified form of the invention.

Referring to the drawings, there is shown a hollow cylindrical barrel 10 including a forward tubular portion 12 having a tapered forward open end 15. The rear end of the tubular portion 12 is formed with an internal thread 14, see FIGS. 3 and 5. An annular flange 16 is integrally formed with the tubular portion 12 as best shown in FIGS. 3 and 4. A coil spring 18 seats on this flange. The barrel has a rear, tubular portion 17 formed with a tapered open rear end 20. The forward end of the tubular portion 17 has a threaded nipple 22 which engages with thread 14 in the forward tubular portion 12 to complete the barrel. An elongated, longitudinally extending recess 24 is formed in the outer side of barrel portion 17. A spring clip 25 is secured at one end by rivet 26 in the recess. A notch 28 formed in the recess 24 at the free end thereof permits the user to insert a fingernail under the end 29 of the spring clip to lift that end outwardly. Clip 25 is formed with a pin 30 which serves as a latch element in the pen. This pin fits into a hole 32 formed in the side of a tube 34 slidable inside the pen barrel.

Tube 34 has a tapered forward end 35 in which fits a pen points 36 and ink feed stem 38. The stem has a groove 40 to guide ink 42 from cartridge 44 to the pen point. The ink cartridge is removably disposed in tube 34. This cartridge includes a closed plastic casing having a frangible forward wall 46. A prong 48 is seated in the forward end of the tube 34 to pierce the wall 46 and form opening 47 when the cartridge is fully seated in the tube. An internally threaded cap 50 screws on the threaded end 52 of the tube to force the cylindrical cartridge into fully seated position in the tube. The cap has a cylindrical rod-like extension 54 whose end appears as a push button when the extension partially projects out of the barrel as shown in FIGS. 4 and 5. A diaphram or mass of fibrous material 60 may be disposed in space 61 between the end of tubular portion 12 and flange 16 or in front of the flange in order to wipe the pen point 36 and seal the opening in the barrel when the pen point is retracted.

In the writing position of the pen shown in FIGS. 1–3, pin 30 is seated in hole 32. The clip 25 is retracted into recess 24 flush with the outer surface of the barrel 10. Extension 54 is retracted and the end of the pen point 36 is extended. Spring 18 is compressed. When the free end 29 of the clip 25 is lifted at the notch end of recess 24, pin 30 is lifted out of hole 32 and the spring 18 retracts the tube 34 and pen point to the positions shown in FIG. 4. Pin 30 then bears on the outer wall of tube 34 under tension of clip 25.

The extended clip can be employed to hold the barrel of the pen with the pen point upright, upon the rim of a garment pocket. There will be no danger of soiling the garment since the pen point is fully retracted into the barrel. The push button end of extension 54 projects outwardly in order to extend the pen point, it will only be necessary to push the extension 54 inwardly into the barrel. Pin 30 will then engage in hole 32 and the clip 25 will retract into recess 24. Accidental retraction or extension of the pen point is not possible since the tube 34 must be moved against spring tension to extend the pen point; and the clip must be lifted against spring tension to release the pin 30 from tube 34.

The modified form of fountain pen shown in FIG. 6 differs from the form of FIG. 1 in that the barrel is sectional having a front section 10', an intermediate section 65 and a rear section 20' constituting a cap. The front section 10' is formed with a reduced end having

external threads 66 to receive the internal threads 68 on the adjacent end of the immediate section 65. The intermediate section 65 is formed with an external threaded extension 69 to receive the internal threads 71 on the adjacent end of the cap 20'.

In this modified form of pen, the tube 34' extends to the tip 15' with a pen wiper device 60' disposed around the tip end thereof. The pen point 36' is shown in extended position and is shown held in extended position by means of a round lug 72 formed on the inner surface of the cap 20' engaging in an annular groove 74 formed on the extension 54' on the tube 34'. An ordinary rubber sac or bladder 44' filled with ink is housed in the tube 34', and is provided with a finger pump 75 for pumping ink through the feeding stem 38' to the pen point 36'.

The extension 54' is provided with a collar 76 fastened thereon by means of a pin 78. The collar serves as a seat for one end of the compression spring 18', the other end of the spring impinging against an annular ledge 88 on the inner surface of the intermediate section 65. The outer extremity of the extension is formed with a round knob 82 and with an inner head 84 spaced inwardly thereof. A slight lateral urge and an outward pull on the knob 82 will release the lug 72 from the groove 74 to permit retraction of the pen point, the passage 86 being sufficiently wide to permit this operation.

There has thus been provided a positive acting extension and retraction mechanism for a fountain pen including a replaceable ink cartridge and pen point fed by ink drawn from the cartridge.

Referring now to the modification shown in FIG. 7, in this form of the invention, a fountain pen of ordinary construction having a barrel 92, enclosing an ink bladder (not shown). A pen point 94 is normally concealed in a tubular casing or barrel 96 provided with a cap 98 threaded onto a threaded extension 100 on the end of the case or barrel 96. The case 96 is formed with an inner annular flange 102 intermediate its ends and with a second inner annular flange 104 adjacent its front end. A mass 106 of fibrous material is packed in the front of the case between the annular flange 104 and the front thereof, which mass of material serves as a wiper for the pen point 94 and also seals the opening at the front from air so as to prevent the ink from drying.

The fountain pen 90 is formed with an outer annular flange 107 intermediate its ends and sleeved around the barrel 92 of the fountain pen there is a coil spring 108 having one end seated on the annular flange 102 and its other end impinging against the annular flange 107 on the fountain pen so as to urge the fountain pen inwardly in order to retract the pen point 94. The fountain pen is provided with the usual metal plate 109 operatively connected to the ink sac for pumping ink from the sack to the pen point.

An extension 111 is formed on the rear end of the fountain pen and extends through a hole 113 formed in the end of the cap 98. The extension has a semi-round knob or finger piece 115 for sliding the fountain pen and is formed with an annular bead 114 inwardly of the knob that serves to limit the inward sliding movement of the fountain pen in the outer case 96. The extension 111 is formed with a reduced end 116 thereby forming an annular groove 118 between the flat end of the fountain pen and the body of the extension 111. An annular flange 120 is formed on the inner surface of the cap 98 adjacent its rear end.

The fountain pen 90 is adapted to be slid inwardly of the case 96 against the action of the spring 108 in order to move the pen point 94 outwardly for writing purposes. In order to hold the pen in this outwardly operative position, the pen is moved inwardly by means of the knob 115 and the pen is then tilted sidewise so as to move the annular groove 118 over and into interlocking relationship with the annular flange 120. The hole 113 in the cap 98 is sufficiently wide to permit this operation. When the flange 120 is in the groove 118 it abuts against the shoulders provided by the flat end of the fountain pen 90 and the flat end of the extension 111. In order to retract the fountain pen, the extension 111 is tilted in the opposite direction in order to release the flange from the groove, whereupon the spring 108 forces the fountain pen inwardly carrying the pen point inside the case 96.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A fountain pen, comprising a cylindrical barrel, a tubular body axially disposed in the barrel and slidable therein, said body having a lateral hole near one end thereof, a cylindrical cartridge containing ink axially disposed in said body, said cartridge having a frangible end wall, a pen point and ink feeding stem inserted in said one end of said body and slidable therewith to extend out of one end of the barrel and to retract within said one end of the barrel in two different positions of said body in the barrel, a rod-like member coaxial with said body and movable to project one end thereof out of the other end of the barrel in one position of the body while the pen point is retracted inside the barrel, a coil spring in the barrel coaxial with said body and bearing on said one end thereof, said spring biasing said body to said one position thereof for retracting the pen point and extending the rod-like member, an elongated spring clip secured at one end thereof near said one end of the barrel, said clip having a catch pin near said one end thereof engageable in the hole in said body for holding the body in the other of said two positions with the pen point extended from the barrel and with said one end of the rod-like member retracted into the barrel, said barrel having an annular flange near the other end thereof providing a seat for said spring, said barrel having an external, lateral, longitudinally extending recess, said clip having a free other end disposed in said recess so that the clip lies flush with the exterior of the barrel when the pen point is extended in writing position, said free other end of the clip extending toward the other end of the barrel, a prong carried by said body interiorly thereof and piercing the frangible end wall of the cartridge to form an opening therein, said stem having an ink feeding groove communicating with the opening in the end wall of the cartridge, and a cap detachably secured to the other end of said body applying pressure axially to the cartridge to force said end wall against said prong and maintain said opening in communication with said groove, said rod-like member being integral with said cap and extending axially therefrom, whereby lifting the free end of the spring clip out of said recess removes the catch pin from said hole while the body slides axially and retracts the pen point, said catch pin then bearing on the body and holding the free end of the spring clip extended laterally outwardly of the body and toward the other end of the barrel to serve as a hook-like support for the pen.

2. A fountain pen according to claim 1, wherein the barrel includes two portions detachably joined together, opposite free ends of said portions being tapered, said flange being located in one of said portions of the barrel, said recess being located in the other portion of the barrel.

3. A fountain pen according to claim 2, further comprising a sealing and wiping means disposed at the other end of the barrel in said one portion thereof adjacent

said flange, for wiping the pen point and for excluding air to keep the ink from evaporating while the pen point is retracted in the barrel.

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