

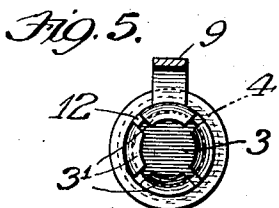
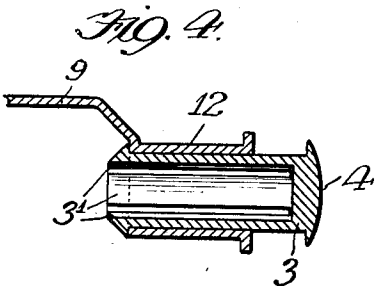
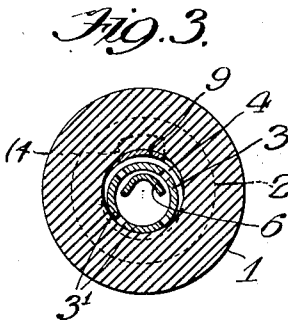
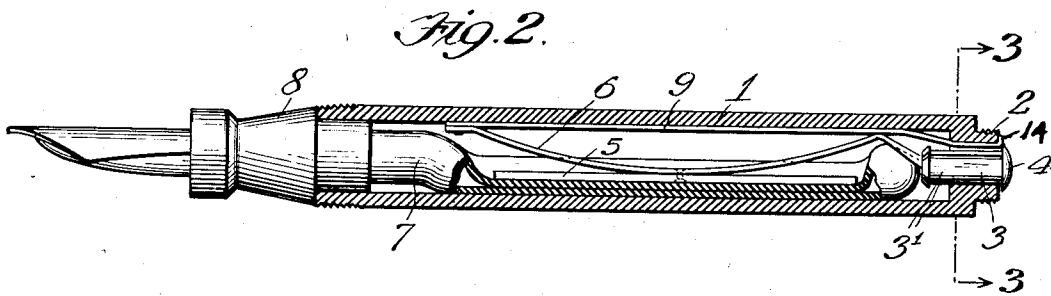
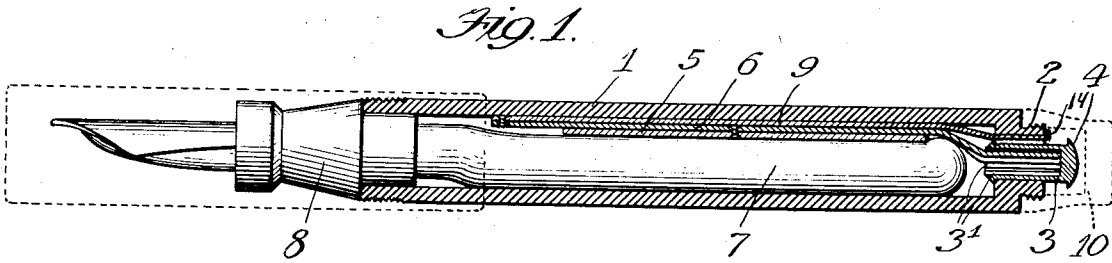
Aug. 18, 1931.

K. S. PARKER

1,819,383

FOUNTAIN PEN

Original Filed Nov. 10, 1927



Witness
Martin H. Olsen

Fig. 6.

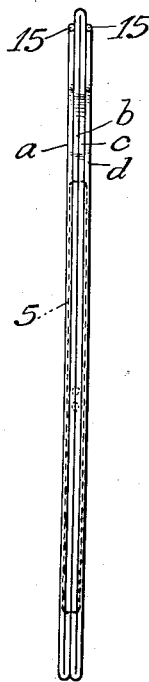
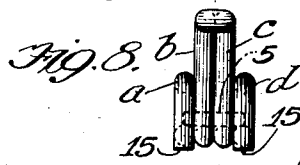
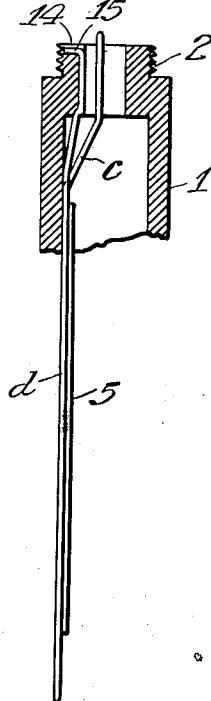


Fig. 7.



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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

Continuation of application Serial No. 232,255, filed November 10, 1927, and in Canada December 2, 1927.
This application filed May 18, 1928. Serial No. 278,864.

My invention relates to that class of "self-filling" fountain pens, in which the ink sac is collapsed during the filling operation by the user pressing end-wise against a plunger or button positioned at the end of the pen remote from the pen-point section. This application is a continuation of my prior application, Serial No. 232,255 filed November 10th, 1927.

It is usual in fountain pens of this type to mount a pressure bar on a flat resilient member or spring which abuts at its lower end against a shoulder on the pen-point section and which is provided with a projecting depressible button or plunger at its opposite end. As its lower end engages the pen-point section the spring bows inwardly when the plunger is pressed downwardly so that the ink sac is squeezed or flattened by the pressure bar to expel the air, the spring then straightening out upon release of the plunger to permit the sac to draw or suck in the ink. The pen-point section must be screwed into or otherwise positively secured to the barrel in order to prevent the pen-point section from being ejected by the pressure exerted against it by the spring. The formation of the screw threads on the pen-point section and barrel is a substantial item of cost in manufacture. Obviously the parts must be very nicely and accurately made and fitted to insure that the flat spring, which is of fixed length, will normally just abut the pen-point section so that the spring is normally unbowed but will be bowed the proper extent when operated to deflate the sac. Even after this nicety of manufacture and assembly is attained, the proper relationship between the lower end of the flat spring and the pen-point section is not invariably maintained because even though the material from which the barrels of fountain pens are made is "cured" before it is used, yet after the pens have been put on the market the barrels continue to shrink. The pen-point section, as customary, carries the ink sac, the lower end of which is engaged and pressed against by the lower end of the flat spring, with the result that the sac becomes chafed at that point, with resultant deterioration. Further, when the

pen-point section is screwed into place, the ink sac rotates with it and relative to the stationary pressure bar and it is apt to be caught and twisted by the pressure bar. This results in undue wear of the sac and prevents its normal functioning until it has been removed and properly reinserted into the barrel.

The principal object of my invention is to overcome the above mentioned objections to and disadvantages in a fountain pen of this type, in which the ink sac is collapsed through the instrumentality of a resilient member actuated by an endwise movable plunger in the end of the pen remote from the pen-point section, by providing an improved anchoring device for the lower end of the resilient member so that the latter does not contact or coact with the pen-point section. More particularly, my invention resides in providing an anchor bar for the resilient member, the bar being connected to the end of the barrel remote from the pen-point section and its opposite end being secured to the adjacent end of the resilient member so that the latter in no way engages with the pen-point section. With this novel structure, the pen-point section may be mounted and held in the barrel by a mere firm sliding fit without the necessity of employing screw threads; shrinkage of the barrel may be amply allowed for; the resilient member does not chafe the ink sac; the sac cannot become twisted by the mechanism, as it is not necessarily rotated in the barrel, and at the same time the mechanism is efficacious, simple, easily assembled and readily removed from the pen.

Fountain pens are made in varying colors and types, to suit the differing fancies of the public. Nibs, also, are of different kinds or designs, such as fine, medium, stub, etc., to meet the tastes of the users and must be accurately positioned in the pen-point sections by the manufacturers. A customer may desire a pen of one color, but demand a nib which he finds in a pen of a different color. With pens in which the operating springs engage the pen-point section, the dealer may not be able to exchange the pen-point sec-

tions in the two pens, as the portions of the sections, extending into the barrels of the pens, may be of different lengths due to shrinkage or variations in manufacture, and in that case the operating mechanism would not work properly. This difficulty is obviated by my invention as the operating spring acts entirely independent of the pen-point section.

For attainment of these objects and others, which will become apparent from the following description taken in conjunction with the accompanying drawings, my invention consists in the features and combinations novelly provided and hereinafter set forth and claimed.

In the drawings:

Fig. 1 is a longitudinal sectional elevation of a fountain pen embodying my invention, the pen-point section and ink sac being shown in full and the end caps being indicated by dotted lines;

Fig. 2 is a similar view except that the operating mechanism is shown in operated condition and in full, instead of in normal condition and in section;

Fig. 3 is an enlarged cross-section taken on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged fragmentary longitudinal section through a modified operating plunger and anchoring means for the spring carrying the pressure bar;

Fig. 5 is a bottom end view of the parts shown in Fig. 4;

Figs. 6 and 7 show a modified form of spring operating bar and anchoring means, Fig. 7 being an edge view taken at right angles to that of Fig. 6; and

Fig. 8 is an enlarged top plan view of the parts shown in Fig. 6.

Referring to Figs. 1 and 2, the upper end or wall of the fountain pen barrel 1 is provided with a boss or neck 2 having a central opening, in which is mounted a hollow plunger 3 provided with a pressure button 4 on its outer end. The lower portion of the plunger is provided with longitudinal slots forming four spring fingers 3', which have shoulders at their lower ends normally engaging the inner side of the end wall of the barrel to limit the outward movement of the plunger. 5 is a presser bar of usual construction, that is to say of the proper length, width and stiffness to compress a large area of the ink sac 7 when pressed against the sac which is carried by the pen-point section 8. The presser bar actuating mechanism comprises a resilient member 6, to be operated by the plunger 3, and an anchor element 9 for the resilient member 6. The anchor element 9 is in the form of a bar which lies flat against the inside of the barrel and near its upper portion is provided with an inclined portion and then a straight portion which projects through and engages one side of the opening

in the end of the barrel, the plunger 3 being of lesser diameter than the opening to accommodate the anchor bar, as best shown in Fig. 3. The upper end of the anchor bar has a lateral extension 14 which rests against the outer end of the boss to prevent inward movement. The lower end of the anchor bar—that is the end toward the pen-point section 8—is riveted or otherwise rigidly secured to the lower end of the resilient member 6 which is in the form of a flat spring 6 normally lying flat against the anchor bar 9 and having its upper offset end projecting in the plunger 3, which is normally maintained in the position shown in Fig. 1 by the spring. The spring 6, intermediate the ends of its flat portion engaging the anchor bar, is secured by means of a rivet or otherwise to the center of the pressure bar 5. It will be observed that the pen-point section is not screw-threaded into the lower end of the barrel, this being unnecessary, as a snug sliding fit between the reduced cylindrical portion of the pen-point section and the inside of the barrel is sufficient to hold the pen-point section on the barrel.

When the ink sac is to be refilled, the upper or butt cap 10, housing the button 4, is removed and the plunger 3 is pushed inwardly with the result that the pressure exerted on the upper end of the spring 6 bows the spring to the condition shown in Fig. 2, the lower end of the spring being anchored to the anchor bar 9. During this movement of the spring 6, the pressure bar is advanced against and flattens the ink sac, thus expelling most of the air from the sac so that when the spring 6 and plunger are restored to normal position by the spring 6 springing back to its unbowed condition upon release of the plunger, ink is drawn up into the sac, as is well understood.

From the foregoing description it will be seen that I have provided an anchor bar secured to the end of the pen barrel remote from the pen-point section and having its end toward the pen-point section supporting the lower end of the operating spring, which is operated by a plunger movable longitudinally of the pen and mounted in the same end of the pen as that to which the anchor bar is secured. Inasmuch as no pressure is exerted against the pen-point section by the operating spring, when the latter is either in normal or bowed condition, it is not necessary to screw-thread this section into the barrel and it will be observed that my pen-point section may be inserted by an end-wise movement and is held in position by the snug fit between the reduced cylindrical portion of the pen-point section and the inside of the barrel. Thus the expense of forming screw threads on the pen-point section and barrel is eliminated. It is immaterial how long the barrel may be or how much it may shrink as the operation of the operat-

ing spring is entirely independent of the pen-point section, the anchor bar being of such length as to insure non-engagement of it or the spring 6 with the pen-point section under all conditions. The lower end of the spring 6 cannot chafe the sac, nor will the sac become twisted by catching against the pressure bar since the pen-point section and sac may be inserted by a longitudinal movement, the screw-threads being dispensed with. The parts may be easily assembled and readily removed. The connection of the anchor bar to the barrel is concealed, and hence does not mar the attractive appearance of the pen.

In Figs. 4 and 5, I have shown a modified manner of securing the anchor bar 9 to the upper end of the barrel. In this form a sleeve 12 having a flange at its upper end is positioned in the opening in the neck 2 and carries the anchor bar 9, which may be integral with the sleeve or be welded to it. The plunger 3 is mounted within the sleeve 12.

In Figs. 6, 7 and 8, I have shown a modified form of anchoring means and operating spring. The operating member and anchoring means are formed of wire, and preferably from a single piece of spring wire which is bent to form four approximately even sections *a*, *b*, *c* and *d* contacting with each other and lying in the same plane. The two middle sections *b* and *c* together comprise the operating spring, to the center of which the pressure bar 5 is secured, as by welding. The other sections *a* and *b* comprise the anchoring means. The upper portions of the sections forming the operating spring are offset to fit within the plunger, which is preferably the same as that in the preferred form. The upper portions of the sections *a* and *d* are also offset to project through the neck 2 and their extreme upper ends are bent to form horizontal projections 15 which engage in recesses 14 formed in the upper flat surface of the neck. It will be obvious that the operation of this modified form of embodiment is the same as that of the preferred form.

I claim:

1. In a fountain pen having a barrel, a pen-point section at one end and a collapsible ink sac, the combination of a pressure bar adapted to be pressed against said sac, a resilient member having one end adjacent the end of the barrel remote from the pen-point section and adapted to be pressed inwardly lengthwise of the barrel to operate the pressure bar, anchoring means for said resilient member, the anchoring means being secured to said barrel at said end remote from said pen-point section, and means in said remote end of said barrel for pressing said one end of said member inwardly lengthwise of said barrel.

2. In a fountain pen having a barrel, a pen-point section at one end and a collapsible ink sac, the combination of a pressure bar adapted to be pressed against said sac, a spring member having its upper end adjacent the end of the barrel opposite the pen-point section and adapted to be pressed lengthwise of the barrel to operate said pressure bar, an anchor element secured to the lower end of said spring member and secured to the end of the barrel opposite the pen-point section, and a member reciprocally mounted in said remote end of said barrel for pressing said upper end of said spring member inwardly lengthwise of said barrel.

3. In a fountain pen having a barrel, a pen-point section at one end, and a collapsible ink sac, the combination of an operating flat spring member in the barrel normally lying adjacent one side of the barrel and adapted to be bowed inwardly by pressure exerted lengthwise on its end adjacent the end of the barrel opposite the pen-point section, an anchor bar lying adjacent said spring member and having its lower end connected to the lower end of said spring member and its opposite end secured to the end of the barrel opposite the pen-point section, and a finger-engageable member reciprocally mounted in said latter end of said barrel and acting directly on said spring member as it is reciprocated in one direction for exerting pressure lengthwise on said spring member.

4. In a fountain pen having a barrel, a pen-point section at one end and a collapsible ink sac, the combination of a pressure bar adapted to be pressed against said sac, a flat spring extending lengthwise of said barrel and secured intermediate its ends to said pressure bar, one end of the spring being adjacent the end of the barrel opposite from the pen-point section and being pressible inwardly to bow the spring, an anchoring element lying against the inside and extending lengthwise of the barrel and having its lower end secured to the lower end of said spring member and its opposite end secured to the end of the barrel opposite from the pen-point section, and means mounted in said latter end of said barrel pressible inwardly of said barrel and engaging said one end of said spring for pressing it inwardly lengthwise of said barrel.

5. In a fountain pen having a barrel with a wall at its upper end provided with an opening, a pen-point section on the opposite end of the barrel and a collapsible ink sac in the barrel, the combination of a pressure bar adapted to be pressed against said sac, a resilient member for moving said pressure bar, a depressible plunger in said opening in the upper end of the barrel for exerting pressure inwardly lengthwise of the resilient member to operate the latter, and an anchoring bar lying against the inside of said

	barrel and having its upper end projecting through said opening and anchored to said end wall of the barrel, the lower end of the anchoring bar being secured to the lower end of said resilient member.	
5	6. In a fountain pen having a barrel with an upper end wall provided with an opening, a pen-point section at the opposite end of the barrel, and a collapsible ink sac, the combination of a pressure bar adapted to be pressed against said sac, a flat spring extending lengthwise of the barrel and carrying said pressure bar, a hollow depressible plunger slidable in said opening in the upper end wall of the barrel and fitting over the upper free end of said spring, an anchor bar lying against the inside of said barrel in parallelism with the flat spring and having its upper end projecting through said opening and anchored to said upper end wall and having its lower free end secured to the lower end of said spring.	70
10		75
15		80
20		85
25	7. In a fountain pen having a barrel and a pen-point section, the combination with a collapsible sac in the barrel, a pressure bar for collapsing said sac, a spring carrying said bar and adapted to be operated by exerting pressure endwise thereof, an anchor element secured to the end of the barrel opposite from the pen-point section and secured to one end of the spring so that the latter is bowed when pressure is exerted endwise of the spring, and finger-engageable means carried at said one end of said barrel and acting on said spring to exert endwise pressure thereon.	90
30		95
35		100
40	8. In a fountain pen having a barrel and a pen-point section at the lower end thereof, the combination of an ink sac in the barrel, a pressure bar interposed between said sac and said barrel, resilient means extending longitudinally within the barrel and operable from the upper end of the barrel for operating said bar to collapse said sac, means associated with the barrel and readily detachable therefrom to anchor said resilient means to the upper end of said barrel, and means associated with said barrel and said resilient means for applying inward endwise pressure to said resilient means to actuate the latter to collapse said sac.	105
45		110
50		115
55	9. In a fountain-pen having a barrel provided with an opening in its upper end, a pen-point section at the other end and a collapsible sac, the combination of a pressure bar adapted to be pressed against the sac, a resilient member carrying said bar and having its upper end projecting through said opening, a plunger mounted in said opening and engaging the upper end of said resilient member for applying inwardly, lengthwise pressure to the same, and an anchoring means for the resilient member, the upper end of the anchoring means being anchored to the upper end of the barrel and the upper por-	120
60		125
65		130

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