

UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

984,116.

Specification of Letters Patent. Patented Feb. 14, 1911.

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To all whom it may concern:

Be it known that I, FRANCIS W. VAUGHN, Jr., a citizen of the United States, residing at West Medford, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to fountain pens.

More particularly it relates to that class of safety pens in which the pen and its tubular holder are withdrawable into the interior of the barrel or reservoir, when not in use, to permit the approach of an exterior impermeate plug to prevent leakage.

The invention aims to provide improvements in the construction of this class of pens.

Particularly it is the object to combine in a pen, without sacrifice of strength in any of the parts, the advantages of an ordinary fountain pen in which the writing pen is fixed to the holder and may be covered for protection by a frictionally held cap, with the advantages of a safety pen in which the writing pen is withdrawable into the reservoir as above described. This is accomplished by completely incasing the barrel within a casing and cap, leaving the barrel free to turn and slide within the casing, and providing holes through the casing for access of one's fingers to grip the barrel when adjusting the cap thereon to make a safety pen.

It is also an object of the invention to provide a more durable and longer lived safety pen, by reducing the wear on the parts incidental to opening and closing it.

The accompanying drawings illustrate an embodiment of the invention in which—

Figure 1 is a side elevation, partly in section, arranged as a safety pen, with the barrel closed; Fig. 2 is a side elevation partly in section on the line 2—2 of Fig. 1 but arranged as an ordinary pen with the writing pen in position for use, and covered with the cap for protection; Fig. 3 is an end view in section on the line 3—3 of Fig. 1.

In the drawings, the barrel 1, which constitutes the ink reservoir of the pen, is surrounded by a casing 2, in which it makes a sliding fit, and is movable longitudinally therein between the positions illustrated in Figs. 1 and 2; and is freely rotatable therein.

The cap 3 has the various combined functions hereinafter described. The writing

pen 4 is mounted within a sleeve 5 surrounding the end of the feed bar 7 and having an outer end of such size that when projected endwise, it enters easily and fills completely the hole 6 at the mouth of the barrel, leaving no escape for ink except through its feed passage. The latter may be of any suitable type. The other end of the feed bar 7 passes through the remote end of the barrel and is anchored in the end of the casing 2, in any suitable way.

A packing to prevent the escape of ink from the barrel is provided. As represented, this consists of disks 9 and 10 screwed into the end of the barrel, with a ring 11 of soft material such as cork compressed between them. The position of the pen is therefore rigid with respect to the casing 2, the barrel being movable with respect to the same. When withdrawn to the degree indicated in Fig. 1 the writing pen stands inside the barrel, the barrel and packing 9, 10, 11 having slid outward on bar 7 until stopped by shoulder 8 on said bar. As the writing pen no longer obstructs the entrance 6 to the barrel, the plug 12 in the inside of the cap has access thereto. This plug has a tapered exterior which tightly fits into the end of the barrel, closing it; being drawn and held by screw-threads 13 on the cap which engage screw threads 14 on the exterior of the barrel. This arrangement constitutes what is known as a non-leakable or safety fountain pen.

If it be necessary, as heretofore, to unscrew the plug 12 and push the barrel back into the casing to project the pen into writing position each time it is desired to open and use the pen, and to perform the reverse operation when it is desired to close the pen, not a little troublesome inconvenience is experienced; and there is also some danger, in the hands of persons not familiar with such pens, of spilling ink before the closure plug is tight in position. The pen illustrated eliminates this inconvenience and greatly reduces said danger by providing a merely pen-protective closing by a frictional clasp of the lips of the cap, which will be the closing ordinarily employed, in the manner in which ordinary fountain pens are closed. This is accomplished by building the case 2 far enough toward the pen end of the barrel so that the cap 3 can fit loosely over the pen, screw 14 and barrel end, and can reach the casing 2 and clasp it friction-

ally without touching them, as shown in Fig. 2. When thus closed, the writing pen is protected as usual in ordinary types of fountain pens. The cap and case together inclose the barrel completely.

As the barrel slides and rotates easily within the case, there is no means, thus far described, by which the plug 12 within the cap can be screwed tight upon the barrel hole 6. Opposite openings in the case are therefore provided as at 15, through which the exterior of the barrel is exposed and may be gripped by the fingers of the user, to facilitate which this portion of the barrel may be ridged or grooved as at 16. By this means a firm and strong grip may be had upon the barrel in opposition to the cap in screwing the plug 12 tight on the barrel mouth. The same grip may be used for unscrewing the plug; after which, the cap being removed, the barrel may be pushed into the case in order to project the pen into writing position as shown in Fig. 2.

In the operation of sliding the pen into or out of the barrel mouth, the tendency to spill the contents is much relieved if the longitudinal progression be slow, and accompanied by considerable rotation which makes it more gradual. This is possible by the construction described because the barrel 1 is free to turn within the casing 2 as well as to slide longitudinally therein.

Owing to the ease with which the writing pen may be protected by the cap, it is not necessary, in closing the pen, to go to the trouble of closing the barrel by withdrawing the pen into the reservoir and screwing the plug 12 into position, except in cases where it is desired to use the non-leakable safety feature. Consequently, much wear on the packing 9, 10, 11 and much of the inconvenience and danger of spilling ink incidental to the safety closing are eliminated. At the same time, the pen is an improvement over some others in that the withdrawal of the pen into the reservoir, for the safety closing, may be effected by a rotating spiral movement, which produces a slower longitudinal movement and thus reduces the suction which in careless hands sometimes is the occasion of ink spilling.

As the closure of the barrel is effected at its mouth when used as a safety pen, the relative lengths of barrel and cap should be designed with reference to the position of the plug 12 in the cap 2, so that when used as a safety pen the plug 12 is seated before the cap binds upon the casing. To guard against injuring the writing pen by attempting to screw the plug 12 into place before sufficiently drawing the writing pen into the barrel, reliance may be placed upon

the fact that the lips of the cap will grip the end of the casing before damaging contact is made, thus protecting the pen; or if desired a central guard rod 17 may be inserted, which will engage the end of the feed bar before the plug 12 strikes the writing pen, in case the lips of the cap should not be stopped by the case as described.

I claim;

1. In a fountain pen, the combination of a barrel reservoir, a pen withdrawable into the barrel, a casing covering the end of the barrel remote from the pen end, a cap to cover the pen end of the barrel, adapted to fit on the near end of the casing and protect the pen when it is projected, and to fit on the barrel closing the outlet when the pen is withdrawn; there being an opening through the casing whereby the barrel within it is accessible to be gripped with the fingers for holding it when the cap is adjusted thereon whereby the barrel may be rotated within the casing or may be held against rotation.

2. In a fountain pen, the combination of a barrel reservoir, a pen withdrawable into the barrel, a casing covering the end of the barrel remote from the pen end, a cap to cover the pen end of the barrel, adapted to fit on the near end of the casing and protect the pen when it is projected, and to fit on the barrel closing the outlet when the pen is withdrawn; the barrel being fitted for free movement within the casing and exposed therethrough for manipulation to adjust the cap thereon, whereby the barrel may be rotated within the casing or may be held against rotation.

3. In a fountain pen, the combination of a barrel reservoir, a pen withdrawable into the barrel, a casing covering the end of the barrel remote from the pen end, a cap to cover the pen end of the barrel, adapted to fit on the near end of the casing and protecting the pen when it is projected, and to fit on the barrel closing the outlet when the pen is withdrawn; an axial bar fast to the casing, entering the barrel at the end remote from the pen, and having a shoulder to limit the travel of the barrel; the barrel being fitted for free movement within the casing and exposed therethrough for manipulation whereby the barrel may be rotated within the casing or may be held against rotation for adjusting the cap thereon.

Signed by me at Boston, Mass., this twenty first day of July, 1910.

FRANCIS W. VAUGHN, JR.

Witnesses:

EVERETT E. KENT,
HAROLD S. LYON.