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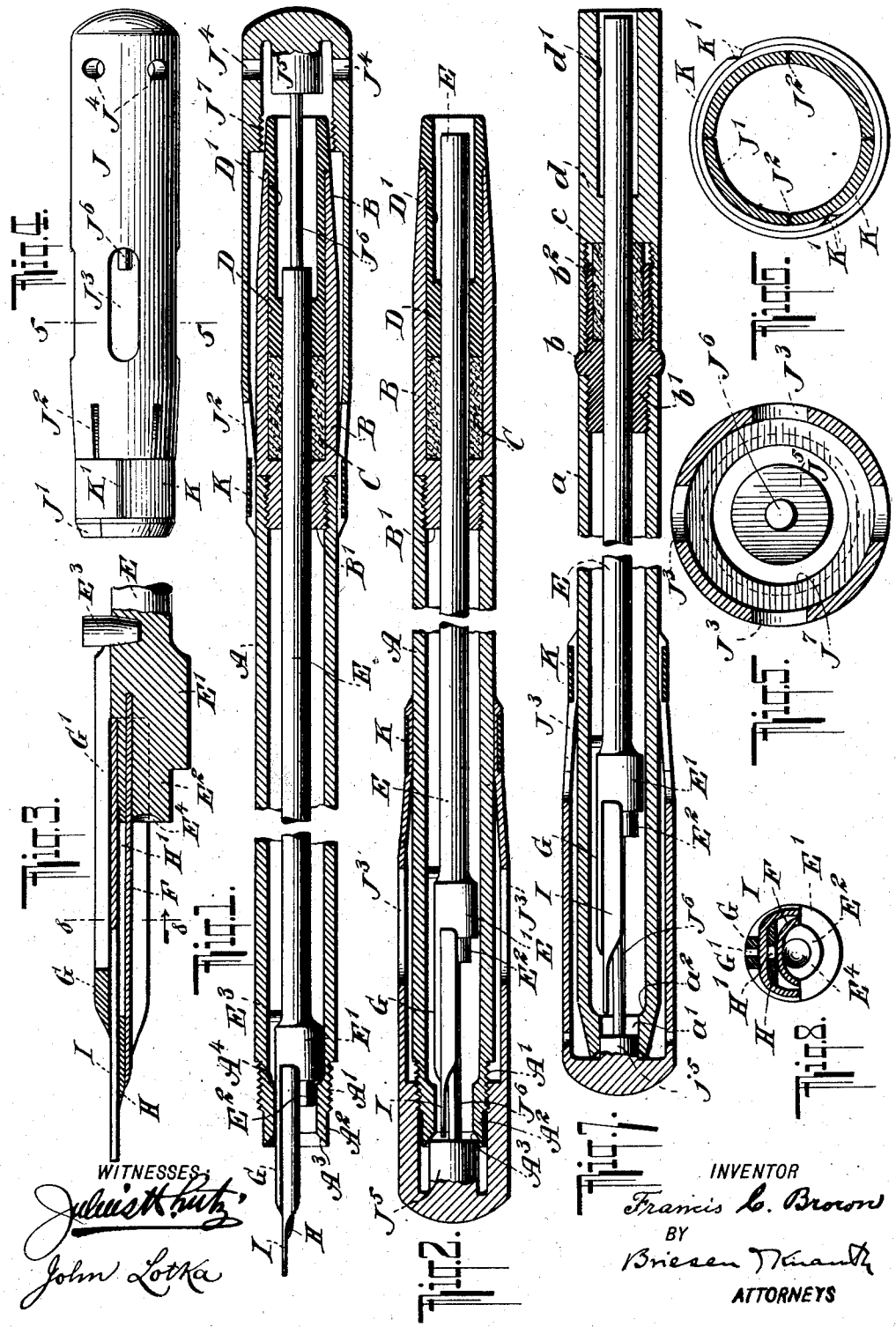
F. C. BROWN.

FOUNTAIN PEN.

APPLICATION FILED MAR. 17, 1906.



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FOUNTAIN-PEN.

No. 846,547. Specification of Letters Patent. Patented March 12, 1907.

Application filed March 17, 1906. Serial No. 306,494.

To all whom it may concern:

Be it known that I, FRANCIS C. BROWN, a resident of New Brighton, Staten Island, borough and county of Richmond, city and State of New York, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention relates to fountain-pens, and particularly to pens of that class in which the pen proper, or nib, is retracted into the barrel when not in use.

My invention has for its object to provide a very simple construction of the above-indicated class, and also to improve certain features of the cap used in connection with the pen, so as to render said cap more efficient and to prevent its becoming soiled.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of one form of my invention shown in position for use. Fig. 2 is a longitudinal section of the same pen shown closed. Fig 3 is a longitudinal section of the nib-carrying portion of the pen drawn upon an enlarged scale. Fig. 4 is an outside view of the cap. Fig. 5 is a cross-section thereof on line 5 5 of Fig. 4. Fig. 6 is a cross-section of a slightly-different form of cap. Fig. 7 is a longitudinal section of another form of my invention shown in the closed position, and Fig. 8 is a cross-section on line 8 8 of Fig. 3.

As illustrated in Figs. 1 to 5 and 8, the pen comprises a barrel A, which at its forward end has a reduced screw-threaded portion A′ and at its extremity a still further reduced portion A^2, provided with a beveled internal shoulder A^3. The mouth of the barrel is made smaller in diameter than the main chamber of the barrel, thus forming a shoulder A^4 within the barrel near its forward end. At its rear end the barrel is provided with an internal screw-thread adapted to receive the perforated plug B′, projected from a sleeve B. The outer surface of this sleeve is flush with that of the barrel A, so that the sleeve to the eye forms the continuation of the barrel, as shown in Fig. 2. Within the sleeve B is arranged a perforated packing or washer C, made of cork or other suitable material, and this washer is held in place by means of a perforated plug D, fitted within the sleeve B and provided with a tubular extension D′, the end of which is shouldered to fit flush against the rear end of the sleeve B.

Within the barrel extends axially the feed-bar E, passing through the perforations of the plug B′, the washer C, and the plug D. Generally the feed-bar is of such length that its rear end will be within the sleeve D′, even when the nib is fully projected, as shown in Fig. 1. At its forward end the feed-bar carries a nib-holder E′, adapted to abut against the shoulder A^4, and this nib-holder is provided with an abutment E^2 at one side and with a guide-pin E^3 on the other side, said pin being adapted for engagement with the inner wall of the barrel. The abutment E^2 may be provided with a small recess or socket E^4, as shown in Fig. 3. The nib-holder has a transversely-concaved brace F, preferably made of metal, such as gold, and this brace bears elastically against the lower tongue H, which, like the upper tongue G, is generally made of hard rubber. Both tongues are slitted lengthwise, as shown at G′ and H′, and receive the nib I between them. The elasticity of the brace F is such that it will follow the nib when the latter is bent in use, the brace thus operating to always keep the lower tongue H against the nib—that is, the nib will in ordinary use never become separated from the lower tongue H.

As a means for projecting and retracting the nib I employ the cap which closes the open end of the barrel when the pen is in use. This cap has a body J, the internal diameter of which is greater than the external diameter of the barrel, so that a free space or chamber is left between the barrel and the cap, as clearly shown in Figs. 1, 2, and 7. The open end of the cap is contracted, as at J′, so that it will fit the barrel, and in order to obtain a proper frictional engagement and a good joint I prefer to slit the contracted end of the cap lengthwise, as indicated at J^2, and to place around this slitted portion an elastic ring K, preferably a split ring with beveled ends K′. As shown in Fig. 6, two such split rings may be employed, one within the other, and with the ends arranged in break-joint fashion. When two split rings are employed, the inner ring will be unable to shift around the end of the cap, so that the ends of the inner ring K will never get into one of the slits J^2. The body of the cap is provided with openings J^3 at about its central portion and also with openings J^4 near its closed end. From the said closed end projects a plug J^5, spaced from the inner wall of the cap and provided with a central push-pin J^6. The chamber which is formed

between the barrel and the cap communicates with the outside air by means of the openings J^3 and J^4, and thus any ink which may stick to the inside of the cap will be dried promptly.

The cap is adapted to be placed over either the front end of the barrel or the rear end thereof. In the latter case the push-pin J^6 will engage the rear end of the feed-bar E and will force the nib forward to the position of use. (Shown in Fig. 1.) The packing C will prevent the escape of the ink from the rear end of the barrel. When the pen is not in use, the cap is removed from the rear end of the barrel and placed on the front end thereof. The push-pin J^6 in this case lies within the concavity of the brace F and rests with its end in the socket E^4 of the abutment E^2. By pushing the cap inward the nib is brought into the barrel, as shown in Fig. 2. During this motion the pin E^3 guides the feed-bar and prevents its being sprung or bent. The screw-thread A^4 of the barrel is engaged with a screw-thread J^7 of the cap, and a tight joint is obtained by the engagement of the plug J^5 with the beveled mouth A^3 of the barrel, as clearly shown in Fig. 2. The openings J^3 serve not only for ventilation, as above described, but also enable the proper engagement of the push-pin J^6 with the nib-carrier to be observed, since, as shown in Fig. 4, the end of the push-pin is visible through the openings J^3. Furthermore, the openings enable air to rush in or out quickly when the cap is put on the barrel or withdrawn therefrom, thus doing away with the resistance opposed by the air to the movement of the cap, and also with the injurious effect of the air compression or suction which might result in the spattering of ink. The openings in the cap also give the fingers a better hold, and thus enable the cap to be turned more readily than when the entire surface of the cap is smooth and polished.

It will be observed that the forward end of the feed-bar E supports the pen or nib through the medium of the nib-carrier, while the rear portion of said feed-bar is guided in the rear wall of the ink-reservoir, and the end surface of the feed-bar is free or exposed and is thus adapted to be engaged by the push-pin J^6, as in the position illustrated by Fig. 1.

In the form of construction illustrated by Fig. 7 the construction of the feed-bar and the parts carried thereby is exactly the same as hereinbefore described, and no special description of these spart will therefore be necessary. The barrel construction and the cap construction are slightly different, though, and will now be described in detail. The barrel a has a contracted mouth a', thus forming an internal shoulder a^2. No external screw-thread is provided on the front end of the barrel. The internal screw-thread at the rear end of the barrel receives a perforated plug b', made integral with a collar or bead b, and an externally-threaded sleeve b^2, within which is located the washer c. This washer is held by a rear portion d of substantially the same diameter as the barrel, said rear portion screwing on the sleeve b^2 and being perforated for the passage of the feed-bar E, the rear end of which is within an enlargement of chamber d'. The cap differs from that previously described only by having the plug j^5 smaller than in the construction first explained, so that said plug can fit within the mouth a' of the barrel, as shown in Fig. 7. Furthermore, the cap has no internal screw-thread; but otherwise its features are the same as before described, as will be obvious from the corresponding reference-letters applied thereto. The operation of the second form of my pen is exactly the same as that of the first, except that the cap is not screwed on the barrel, the tight joint being obtained by the fit of the plug j^5 into the mouth a' and by the engagement of the forward end of the barrel with the bottom or closed end of the cap.

The term "exposed" used with reference to the rear end surface of the feed-bar does not necessarily mean that the said rear end surface should be readily visible or accessible, but simply that it should be in contact with the outside air when the cap is removed from the rear end of the pen. As a matter of fact in the constructions illustrated by the drawings the rear end surface of the feed-bar, although exposed in the sense above explained, is always sheltered or protected by the surrounding sleeve portion D' or d'.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a fountain-pen, the combination with the barrel, of a cap, the body of which has an internal diameter reduced at the open end of the cap to closely fit the barrel, but larger in the body of the cap so as to form an air-chamber around the barrel, the cap being formed, at different distances from its end, with openings leading into said chamber.

2. A cap for fountain-pens, having its interior diameter reduced at the open end and enlarged in the body of the cap, said cap having openings leading to the said enlarged portion, and an internal push-pin visible through said openings.

3. A cap for fountain-pens, having a slitted open end, and a plurality of split elastic rings surrounding said end and arranged in break-joint fashion.

4. A cap for fountain-pens, having its interior diameter reduced at the open end and enlarged in the body of the cap, the open end of the cap being slitted, and a clamping or contracting ring surrounding said slitted end.

5. In a fountain-pen, a nib-carrier pro-

vided with upper and lower feed-tongues adapted to receive the nib between them, and a transversely-concaved brace engaging the lower feed-tongue.

6. In a fountain-pen, a nib-carrier provided with a feed-tongue adapted to engage the lower face of the nib, and a transversely-concaved brace engaging the lower feed-tongue.

7. In a fountain-pen, a barrel, a sliding feed-bar therein, a nib-carrier located at the forward end of the feed-bar and provided with an abutment, a transversely-concaved brace extending forward of said abutment, and a cap provided with an internal push-pin adapted to engage said abutment and to lie within the concavity of the brace.

8. In a fountain-pen, a barrel, a sliding feed-bar therein, a nib-carrier located at the forward end of the feed-bar and provided with an abutment recessed on its forward face, a transversely-concaved brace extending forward of said abutment, and a cap provided with an internal push-pin adapted to lie within the concavity of the brace and to engage, with its end, the recess of the abutment.

9. In a fountain-pen, a barrel having a perforated plug at its rear end, a feed-bar having its rear end slidably mounted in said plug and having a nib-carrier at its front end and an abutment at one side of said nib-carrier, said feed-bar being freely movable for projecting the nib-carrier from or retracting it within the barrel, and a cap adapted to fit over and slide upon either end of the barrel, said cap being provided with an interior push-rod adapted to engage the rear end of the feed-rod or the abutment at the front end thereof and move said rod the required distance when the cap is slipped on the barrel.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANCIS C. BROWN.

Witnesses:

JOHN LOTKA,

JOHN A. KEHLENBECK.