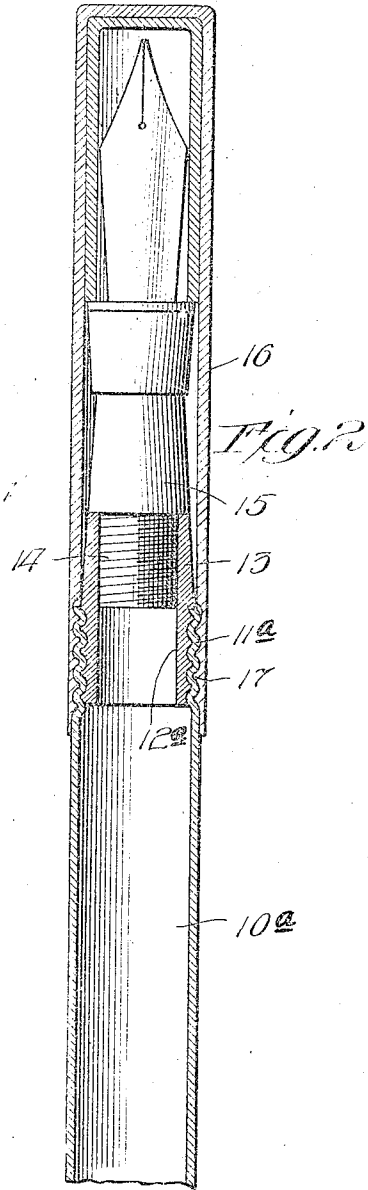
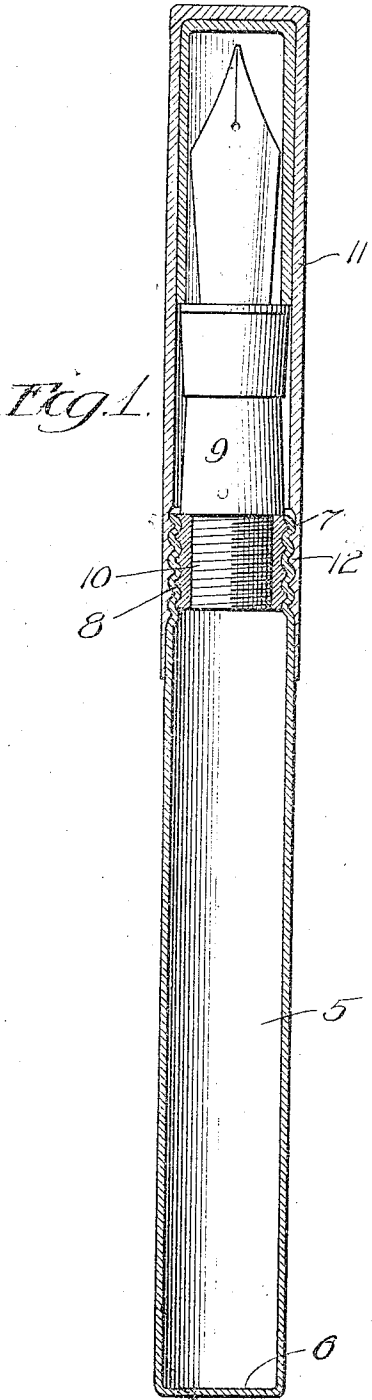


C. R. KEERAN,
FOUNTAIN PEN.
APPLICATION FILED MAY 2, 1918.

1,301,057.

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FOUNTAIN-PEN.

1,301,057.

Specification of Letters Patent. Patented Apr. 15, 1919.

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To all whom it may concern:

Be it known that I, CHARLES R. KEERAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to fountain pens, and more particularly to certain improvements which are designed to increase the capacity of the ink reservoir in the barrel.

According to the constructions which are now in common use, the barrel of the fountain pen is formed of hard rubber of a substantial thickness to insure the requisite strength. The outside diameter of such a barrel is necessarily limited by considerations of convenience in handling and the desire to keep the proportions symmetrical. It follows, consequently, that the interior diameter of the barrel is much less than the outside diameter because of the thickness of the walls.

In some styles of pens now made, the rubber barrel is incased within a metallic sheathing, usually of gold or silver, but in such cases the capacity of the ink reservoir remains unchanged. For these reasons the cubical space available as an ink reservoir can only be a fraction of the cubical space occupied by the exterior of the barrel.

The primary object of this invention, therefore, is to devise a fountain pen whose barrel is formed of a comparatively thin material so as to provide an ink reservoir there-within of the maximum capacity. As the volume of a cylindrical body varies as the square of its diameter, it is obvious that only a small increase in the inside diameter of the barrel is necessary to double the capacity of the ink reservoir.

With the end in view of providing a construction which will afford a considerably greater capacity for ink, and which will provide an ink-tight joint between the barrel and pen section, the present invention has been devised. Other objects and uses will also appear from the description to follow, wherein reference is made to the accompanying drawing which illustrates in longi-

tudinal section two suggestive embodiments of my invention—

Figure 1 representing a construction in which a threaded ink-tight joint is provided between the barrel and the bushing, the bushing being short; and

Fig. 2 representing a construction in which a threaded ink-tight joint is provided between the barrel and the bushing, the bushing being relatively long.

Referring now particularly to Fig. 1, I have illustrated a fountain pen comprising a metallic barrel 5 of the usual cylindrical form having a closed end 6, the opposite end 7 being open, the walls adjacent thereto being threaded both interiorly and exteriorly. Such a barrel may be formed of some of the finer metals, such as gold or silver, the walls of the barrel being relatively thin. In order to provide threads both interiorly and exteriorly upon the end 7, I prefer to arrange them in complementary relation; that is, the highest points of the exterior threads are made to correspond with the lowest points of the interior threads so that the thickness of the walls in the region of the end 7 is substantially the same as elsewhere in the barrel.

Screw-threaded into the end 7, is a bushing 8, which I prefer to form of the same material as the pen section 9, preferably of hard rubber or other suitable composition. The pen section is provided with the customary threaded stem 10 arranged to thread into the bushing 8, which is provided with suitable interior threads for this purpose. In forming the exterior threads on the bushing relative to the interior threads of the barrel with which it engages, I arrange these parts so that they engage with a high degree of friction and require considerable force for their assembly. This is for the purpose of making a fit between the bushing and the barrel end 7 sufficiently tight to prevent any leakage of ink, and to prevent the bushing from unscrewing from the barrel whenever the pen section is removed from the bushing. The threaded connection between the stem 10 of the pen section 9 and the interior of the bushing is formed less

tightly to permit these parts to be unscrewed after the manner common to fountain pens. It follows, therefore, that due to the differences in friction with which the bushing engages the barrel on the one hand and the threaded stem of the pen section on the other hand, the latter may always be unscrewed from the bushing without danger of unscrewing the bushing from the barrel. As is common with pens of this character, a cap 11 is provided, the same being threaded as at 12 near its open end to engage with the exterior threads of the barrel. In their assembled relation the parts will occupy positions substantially as is shown in Fig. 1.

Referring now particularly to Fig. 2, I have shown a construction that is very similar to that already described in connection with Fig. 1. The pen of Fig. 2 is equipped with a barrel 10^a, the lower end being broken away in the figure, and the upper end 11^a being threaded interiorly and exteriorly in the same manner as has already been described in connection with the threads at the end 7 of the barrel in Fig. 1. The bushing 12^a is exteriorly threaded to be tightly engaged by the interior threads at the end 11^a of the barrel 10^a, so as not to be easily removable therefrom. The bushing 12^a, however, extends beyond the end 11^a of the barrel as at 13, this extended portion being interiorly threaded to receive the threaded stem 14 of the pen section 15. A cap 16 is interiorly threaded as at 17 to be secured to the exterior threads at the end 11^a of the barrel. In this construction it will be noted when the cap is removed the projecting end of the bushing will be exposed and may be grasped by the fingers when writing, in case this is found desirable.

In each of the constructions described, it is obvious that the use of the metallic barrel dispenses with the customary rubber shell which ordinarily constitutes the reservoir, and adds greatly to the capacity of the pen. The well known difficulties in providing an ink-tight joint between a pen section and any metallic part has prevented the use of metallic barrels for such pens. However, by utilizing a bushing with which the pen section may engage to form an ink-tight joint, and which may be fitted into the end of the barrel in a manner to prevent the leakage of ink, I am enabled to overcome the obstacles mentioned and to provide a construction in which a much greater capacity for ink is provided. The operations of refilling the pen which require the pen section to be temporarily removed from the barrel are in no wise affected by the present construction, since the pen section is removable from the bushing with the same ease as has been formerly the case where the pen section has been screwed directly into the upper end of a rubber barrel. When replaced, the joint will be

as free from leakage as though the entire barrel were made of hard rubber in the usual manner.

I claim:

1. In a fountain pen, the combination of a barrel having its open end threaded interiorly, a bushing formed to engage with the barrel threads with relatively great friction to form an ink-tight joint therewith, and a pen section formed to engage with the bushing with relatively small friction and forming an ink-tight joint therewith, whereby the pen section may be rotated to disengage from the bushing without unscrewing the bushing from the barrel, substantially as described.

2. In a fountain pen, the combination of a metallic barrel having its open end formed with threads exteriorly and interiorly thereof, the convolutions of the threads on the inner and outer sides of the barrel being arranged to preserve a thickness of metal therebetween at every point substantially equal to the thickness of the barrel walls, a bushing threaded interiorly and exteriorly and adapted for engagement with relatively great friction with the interior threads on the barrel, a pen section having a threaded stem adapted for engagement with relatively small friction with the interior of the bushing, whereby the pen section may be unscrewed from the bushing without causing the bushing to unscrew from the barrel, and a cap arranged to cover the pen section and engage with the exterior threads of the barrel, substantially as described.

3. In a fountain pen, the combination of a metallic barrel having its open end formed with threads exteriorly and interiorly thereof, the convolutions of the threads on the inner and outer sides of the barrel being in staggered relation, a bushing threaded interiorly and exteriorly and adapted for engagement with relatively great friction with the interior threads on the barrel, a pen section having a threaded stem adapted for engagement with relatively small friction with the interior of the bushing, whereby the pen section may be unscrewed from the bushing without causing the bushing to unscrew from the barrel, and a cap arranged to cover the pen section and engage with the exterior threads of the barrel, substantially as described.

4. In a fountain pen, the combination of a metallic barrel, a rubber pen section, and means constituting a joint between the barrel and pen section comprising a rubber member tightly and permanently fitted to the barrel and less tightly fitted to the pen section and forming an ink-tight joint with each, the pen section being removable from the rubber member, substantially as described.

5. In a fountain pen, the combination of

a metallic barrel, a rubber pen section, and a rubber bushing into which the pen section is removably threaded, the bushing being permanently secured within the barrel in a manner to form an ink-tight joint there-
5 with, substantially as described.

6. In a fountain pen, the combination of a metallic barrel, a rubber bushing having a threaded connection with the barrel and

engaging therewith in a manner to form a 10 permanent and ink-tight joint with the barrel, and a rubber pen section removably threaded into the bushing, substantially as described.

CHARLES R. KEERAN.

Witness:

EPHRAIM BANNING.