

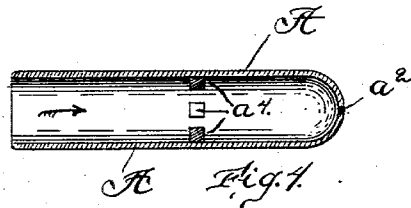
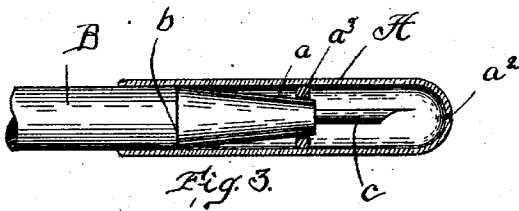
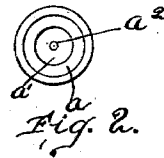
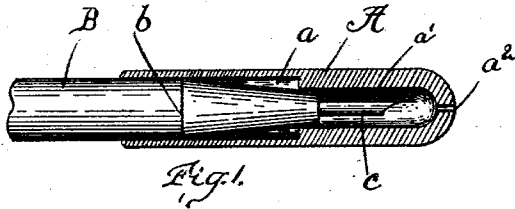
No. 634,013.

Patented Oct. 3, 1899.

O. R. MITCHELL.
FOUNTAIN PEN.

(Application filed Mar. 13, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 634,013, dated October 3, 1899.

Application filed March 13, 1899. Serial No. 708,851. (No model.)

To all whom it may concern:

Be it known that I, OLIVER R. MITCHELL, of Boston, Suffolk county, Massachusetts, have invented an Improved Fountain-Pen, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal central section of a cap embodying my invention, showing it in place upon the end of a fountain-pen. Fig. 2 is an end view of the cap, looking into the open end. Fig. 3 shows another embodiment of my invention. Fig. 4 shows yet another embodiment of my invention. Fig. 5 is an end view of Fig. 4, looking in the direction of the arrow.

My invention is an ink-joint for closing the open or pen end of fountain-pens to prevent the escape of ink when the pen is not in use.

In fountain-pens as heretofore made the cap has been formed in one of three ways. Either it has been a hollow cylinder closed at one end and adapted at its open end or mouth to fit upon the cylindrical end of the point-section of the fountain-pen, or the cap has been formed as a hollow cone and used in connection with a conical point-section, or the cap has been formed as a hollow cylinder, the inside of the mouth of which has been formed as a truncated cone, this form of cap-mouth being used in connection with a conical point-section. The first and third forms of cap above mentioned were objectionable in this that within the limits possible to be given for the engagement between cap and point-section it was not possible owing to the elastic nature of the material (hard rubber) of which caps are commonly made and owing to the necessary thinness of the walls of the cap to obtain a connection so firm and secure that it was not liable to be disturbed and disconnected by the natural working of the cap upon the point-section under the influence of the leverage due to the length of the free end of the cap. Furthermore, a difficulty common to all caps and fountain-pen connections in which the end of the fountain-pen is a cone and the cap in whole or in part conical inside is that in the hands of ignorant or inexperienced persons the cap is likely to be

forced upon the conical pen end so far and so hard as to split the cap and thus ruin it.

My improvement is designed to remedy these difficulties by providing a cap different in its interior form and its manner of application to the fountain-pen to anything heretofore known and more cheaply and easily made.

In the drawings, Fig. 1 shows the cap A in longitudinal section formed as to its exterior in the common fashion as a cylinder of uniform size throughout its length, but as to its interior formed as a hollow cylinder of two diameters, the part *a* of largest diameter being that forming the mouth of the cap, the cylinder of smaller diameter *a'* forming the interior end. The diameter of the part *a* is governed by the diameter of the cylindrical portion of the fountain-pen B—that is, that portion of the pen above the point *b* where it begins to taper to the pen-point and is designed to be a tight driving fit for this portion of the pen. The open end of the inner portion *a'* is designed to pass up over the tapered end of the pen-point and engage that tapered end when the open end *a* of the cap has passed upon the cylindrical lower end of the fountain-pen to the desired distance. The result of this construction is that an ink-tight joint is formed between the inner surface of the mouth *a* of the cap and the outer surface of the fountain-pen B, while the shoulder formed by the abrupt change from one interior cylindrical portion *a* to the other cylindrical portion *a'* of the cap engaging the tapered end of fountain-pen serves as a support against sidewise strains and gives as secure a connection to the cap with the fountain-pen as if the inner surface of the cap were in contact with the outer surface of the cylindrical portion of the fountain-pen from the mouth of the cap to the mouth of the inner cylindrical portion *a'* of the cap, at the same time leaving only a minimum length of the outer end of the cap unsupported to act as a lever to work the cap free from its engagement with the fountain-pen. It is obvious that such a length of engagement between cap and fountain-pen as is in this manner provided for would be as a practical mat-

ter impossible in any other way, for a cap of such length as to pass upon the cylindrical portion of the fountain-pen to such an extent would be so long as to be objectionable.

5 Furthermore, even if this were not so the cap supposed, being unsupported from the beginning of the taper instead of from a point near the small end of the taper, would exercise a much greater effect by way of leverage, 10 tending to disconnect the two parts and to strain and distort the mouth of the outer cylindrical portion a of the cap.

The inner cylindrical portion a' of the cap is of such a size as to receive the pen C and 15 is vented by a small aperture a^2 , as is customary.

The practical result that I have described above as arising from the construction illustrated in Fig. 1 may also be obtained by inserting into a hollow cylindrical cap whose 20 interior diameter is uniform a ring a^3 of hard rubber or the like and securing it in place, (see Fig. 3,) or the result may be obtained by forming three or more knobs a^4 of suitable 25 size at the proper place upon the interior surface of the cap to engage the tapered end of the fountain-pen and prevent sidewise movement of the cap. (See Fig. 4.)

What I claim is—

1. The fountain-pen above described made up of a barrel cylindrical in cross-section and 30 tapered at the pen end; a cap to close the pen end of said barrel, the said cap being a hollow cylinder whose interior diameter is equal to the outer diameter of the barrel above the 35 taper and a stop within the cap adapted to engage the tapered end of the barrel to regulate the position of the cap upon the barrel and to secure it in place.

2. The ink-joint and stop made up of a barrel 40 cylindrical in cross-section; a cap cylindrical within and of equal interior diameter with the outer diameter of the barrel; a tapered point-section at one end of the barrel and a projection 45 within the cap adapted to engage the tapered point-section and to cooperate therewith, all organized and operating to form an ink-joint between the cylindrical portion of the barrel and the interior cylindrical mouth 50 of the cap and a stop between the projection within the cap and the exterior of the tapered point-section, to regulate the extent of the ink-joint and secure the cap in position.

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