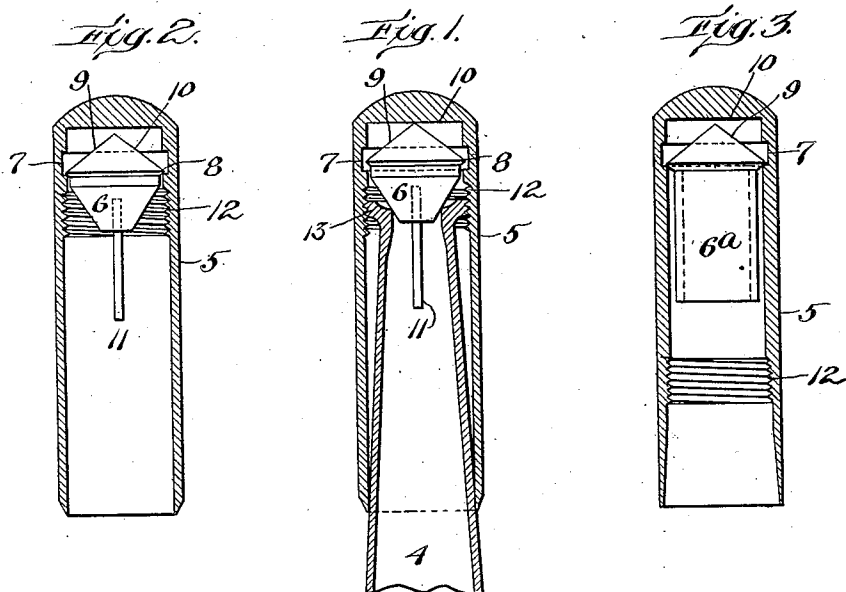


F. W. VAUGHN, JR.
FOUNTAIN PEN.
APPLICATION FILED JULY 27, 1911.

1,071,538.

Patented Aug. 26, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

1,071,538.

Specification of Letters Patent.

Patented Aug. 26, 1913.

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To all whom it may concern:

Be it known that I, FRANCIS W. VAUGHN, Jr., 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.

My invention relates to fountain pens and particularly to that kind of fountain pen in which provision is made for thoroughly inclosing the ink when the pen is not in use so that it shall not escape to the detriment of the user.

The object of my invention is to provide an improved fountain pen and particularly to improve the construction of the cap of the pen so that when the latter is closed the ink will be perfectly confined within the pen and cannot escape to the exterior of the latter. To accomplish this result I provide a valve within the cap of the pen which is adapted to fit against the end of the pen body and effectually close the latter so that ink cannot escape. This valve is locked within the cap, but loosely, so that when the cap is applied to the pen body the valve can rock relatively to the cap and fit itself to the end of said body.

The main feature of my invention consists in making the cap with an annular groove upon its interior into which is sprung an annular flange that is provided on the valve, the latter being passed into the open end of the cap and forced inwardly until the flange and groove are interlocked. This provides a simple and inexpensive construction and permits the cap body to be made of one piece.

In the accompanying drawings: Figure 1 is a central longitudinal sectional view of one end of a pen embodying one form of my invention; Fig. 2 is a longitudinal sectional view of the cap of the pen shown in Fig. 1; and Fig. 3 shows a sectional view of a cap adapted to another type of pen.

Having reference to Figs. 1 and 2, 4 represents the body of a "retractible" pen, 5 the cap body and 6 the cone-shaped valve of the cap. The cap body 5 is made of one piece and upon its interior and near its closed end is formed an annular groove 7 into which extends an annular flange 8 on valve 6 so that the valve and cap are interlocked, but with provision for free relative

rotary movement between the cap body and valve. The annular groove 7 is made wider than the annular flange 8 so that the valve is free to rock independently within the cap body to a limited extent. The top of valve 6 is made conical as indicated at 9 with the apex of the cone coöperating with the flat end wall 10 of the cap body. When the cap is slipped onto the pen body 4, valve 6 enters and seats itself within the mouth of body 4 as shown in Fig. 1, the loose fit between the flange 8 and groove 7 permitting the valve to fit itself perfectly in the end of the pen body. Also the distance between the bottom or outer edge of groove 7 and wall 10 is somewhat greater than the distance between the apex of the cone-shaped top of valve 6 and the bottom or outer side of flange 8, which permits the valve to rock and fit itself perfectly to the pen body 4. Preferably the valve 6 is provided with a centering and guiding stud 11 which coöperates with the pen point to position the valve on its seat. In Fig. 3 the valve 6^a is similarly mounted within the cap body 5 but is in the form of a hollow cylinder closed at its inner end. This form of my invention is suitable for non-retractible pens, the outer rim of the cylindrical valve 6^a seating itself against the end of the body of the pen while the pen point extends into the interior of the valve. The cap body 5 is, as usual, interiorly threaded as at 12 to engage the usual threads 13 on the pen body 4.

In making my improved cap the body and valve are separately completed and then the valve 6 is passed into the body 5 and its flange 8 forced past the threads 12 into the annular groove 7, the body 5 being sprung outwardly by the valve as the flange is forced past the threads 12, and springing back into its original shape and size at that point when flange 8 enters groove 7. It will be obvious, of course, that if desired the valve 6 may be forced into place within body 5 before the threads 12 are formed on said body.

Preferably the flange 8 is thinned toward its periphery so that when the valve 8 is being forced into place it will yield easily as said flange is forced past the constriction below groove 7 and then as the flange 8 enters the groove it resumes its normal shape thereby locking the valve within the body.

In practice the diameter of the constricted part immediately below the groove 7 differs very little from the outside diameter of flange 8 and therefore the flange and body 5 are only slightly distorted when the valve is forced into place. This difference can be made very slight because the valve is not subjected to any strains tending to disconnect it from the body other than the weight 10 of the valve.

What I claim is:—

A cap for fountain pens comprising a hollow body of one piece made from elastic and resilient material and having upon its interior an annular groove; an independently

movable valve within the bore of said body having an annular flange greater in diameter than the diameter of said bore, but less than the diameter of the annular groove, the said flange being of suitable diameter to be 20 forced along the said bore and sprung into the annular groove and said flange being confined therein.

Signed by me at Boston, Mass., this 12th day of July, 1911.

FRANCIS W. VAUGHN, JR.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
