W. F. DURYEA.

SELF FILLING PEN.

APPLICATION FILED JAN. 18, 1912.

**1,049,465.**

Patented Jan. 7, 1913.

Fig. 1.

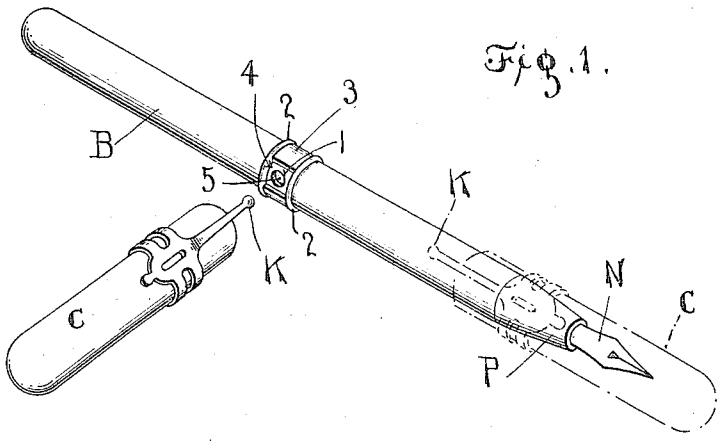



Fig. 2.

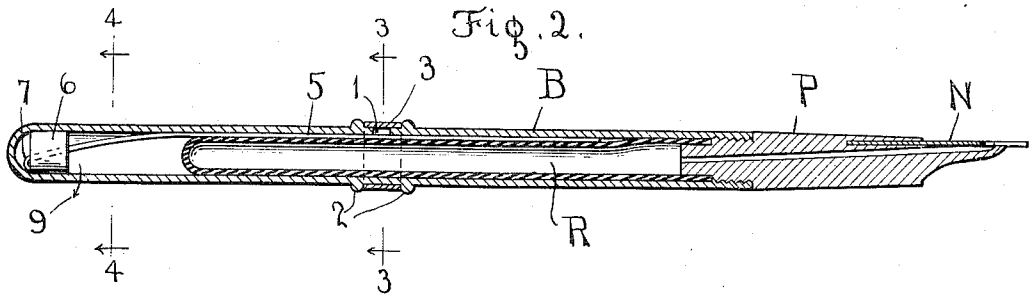



Fig. 3.

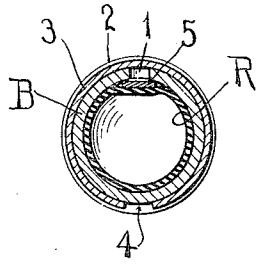



Fig. 4.

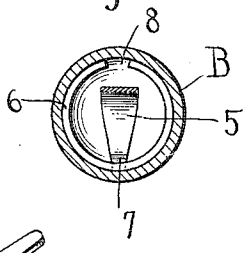
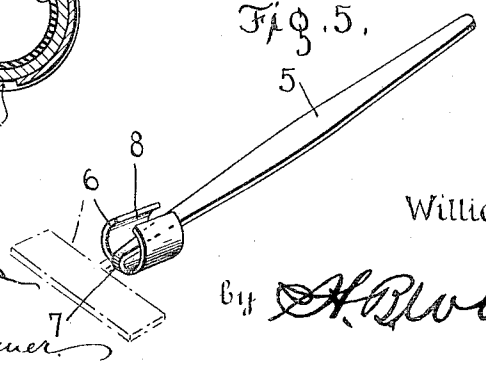



Fig. 5.




Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM F. DURYEA, OF HACKENSACK, NEW JERSEY.

## SELF-FILLING PEN.

1,049,465. Specification of Letters Patent. Patented Jan. 7, 1913.

Application filed January 18, 1912. Serial No. 671,878.

*To all whom it may concern:*

Be it known that I, WILLIAM F. DURYEA, a citizen of the United States, residing at Hackensack, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Self-Filling Pens; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to stationery, and more especially to fountain pens; and the object of the same is to improve the construction of the self-feeder therein, and to protect or cover the opening through which the filler is actuated. These objects are accomplished by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a perspective view of this improved pen, showing the cap as removed and about to be used to actuate the filler. Fig. 2 is a central longitudinal sectional view of the pen complete without the cap. Figs. 3 and 4 are enlarged cross sections on the lines 3—3 and 4—4 respectively of Fig. 2; and Fig. 5 is a perspective detail of the spring and its support.

In the drawings is shown a tubular barrel B closed at its upper end and connected at its lower end with a plug P carrying the nib N, and a removable cap C carrying the usual clip having a small knob K at its extremity. No novelty is claimed for these features of the pen.

Coming now more particularly to the present invention, I pierce the barrel B at about the center of its length with a lateral hole 1 and form around the barrel a pair of ribs 2 at opposite sides of said hole, and in the channel between said ribs is diposed a split ring 3 whose normal tendency to contract will hold it with some little friction in such channel although it will permit it to be turned as seen in Fig. 1 to expose the hole 1 for a purpose to be described below. The plug P carries the usual rubber reservoir R which is of sufficient length to extend past this hole as seen in the sectional view. Disposed within the barrel is a long leaf spring 5 standing between the reservoir R and the hole 1; and, as is well known in self-feeding fountain pens of this character, when this spring is depressed it compresses the reservoir to eject what air remains in the latter, and when pressure on the spring is removed the reservoir opens out to suck in a new charge of ink and thereby the pen is filled.

In my present invention the ring 3 is turned so that its split or space 4 exposes the hole 1, and the small knob K at the end of the clip may be inserted through said hole to press the spring 5 in the act of filling the pen as above described.

Another feature of my invention is the peculiar shape of the spring and the manner in which it is mounted within the barrel B. As seen in Fig. 5 in dotted lines. the spring is initially stamped in the shape of the letter T whereof its body 5 constitutes the spring, and the head 6 thereof is then bent over on the bend 7 and its side arms curled inward as at 8 until they nearly meet—thereby producing a split yielding ring whose normal size is by preference a little larger than the interior circumference of the barrel B. To insert this device into said barrel, the arms 8 are pressed a little farther together and the entire ring pushed into place as seen at the left of Fig. 2, after which the normal expansion of said arms will cause the ring to bind within the barrel and the normal tendency of the metal to straighten out at the bend 7 will cause the entire ring to cant slightly within the barrel as indicated by the light arrow 9. Thereby this spring is adjustably and yieldingly held in place by two means, although it may be removed if it becomes necessary to do so. The sizes and materials of parts are not essential to the successful operation of this invention. Thus it will be seen that the spring 5 freely passes through the head 6 thus formed and is out of contact with the yieldingly formed arms 8 thereof, thereby, providing a cheap and reliable construction. The use of a long and nearly flat spring causes the compression of the rubber reservoir R when the knob K of the clip is inserted through the hole 1, throughout nearly the full length of said reservoir so that the air is almost completely ejected and the charge of ink taken in is considerable. By preference said spring is made a little wider at its midlength than at its extremities, as shown in Fig. 5, so that the knob will reliably strike upon the spring and not slip it off its edge. The ring or band around the channel between the two ribs on the barrel is by preference also made of spring

metal so that it fits closely against the bottom of said channel and reliably closes the hole 1 when properly turned, and this detail of construction prevents the ink from leaking out of the barrel from a possibly burst reservoir and into the pocket of the wearer.

The details of construction may be amplified or changed without departing from the spirit of my invention, so long as the essential principles thereof are retained.

What is claimed as new is:

In a fountain pen, the combination with a barrel having a lateral hole at about its midlength, a nib-carrying plug, and a flexible ink reservoir connected therewith and extending into the barrel past said hole; of a spring within the barrel between said reservoir and hole, its upper end being reversely bent and continued into a head comprising two side arms and the latter in turn being curled upward and thence inward toward each other into a split ring of a normal size larger than the interior circumference of said barrel, said spring passing through the head and out of contact with the arms thereof, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM F. DURYEA.

Witnesses:

M. H. DURYEA,

P. O. DURYEA.