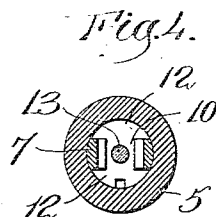
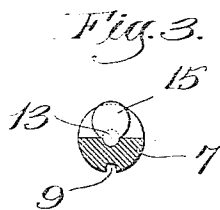
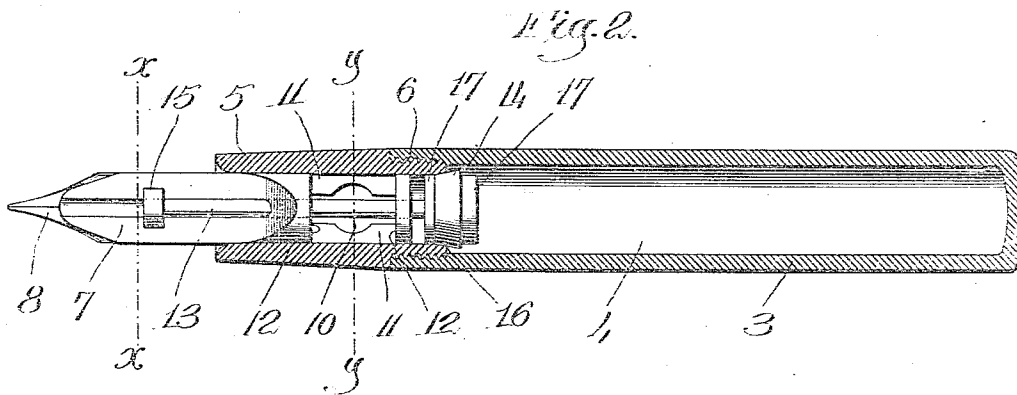
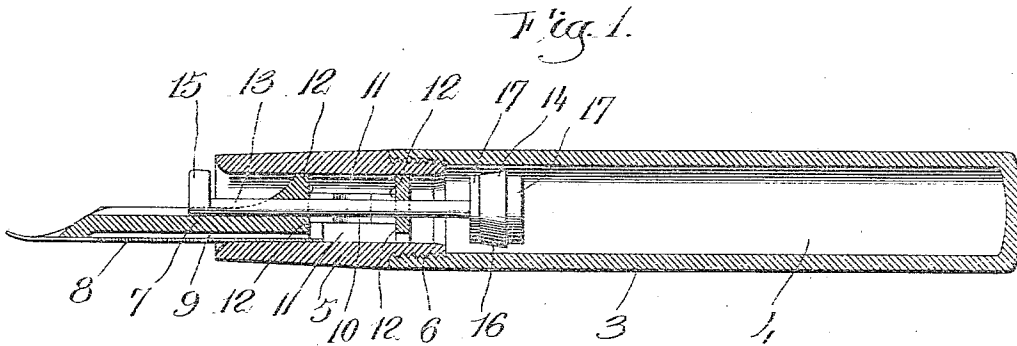


M. R. CROSSMAN.
 FOUNTAIN PEN.
 APPLICATION FILED MAY 13, 1909.

1,054,678.

Patented Mar. 4, 1913.



Witnesses.
 Thomas Drummond
 Joseph M. Ward.

Inventor.
 Martin R. Crossman,
 by Henry J. Guyre, atty.

UNITED STATES PATENT OFFICE.

MARTIN R. CROSSMAN, OF BOSTON, MASSACHUSETTS.

FOUNTAIN-PEN.

1,054,678.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed May 13, 1909. Serial No. 495,672.

To all whom it may concern:

Be it known that I, MARTIN R. CROSSMAN, a citizen of the United States, residing at Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Fountain-Pens, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to fountain pens and has for one of its objects to provide a novel fountain pen which can be made non-leakable so that it may be safely carried either end up without danger of leaking, and for another object to provide a novel construction which will prevent the pen from flooding when the ink is nearly exhausted therefrom.

I accomplish the first object of my invention by providing the pen with a valve which is situated adjacent the inner end of the feed and is adapted when properly placed to close communication between the inner reservoir and the feed duct, and which may be operated from the exterior of the pen; and I accomplish the second object of my invention by providing a feed bar of novel construction which acts in conjunction with the valve to restrain the feeding of the last few drops of ink and to prevent said drops of ink from flowing from the pen fast enough to cause a blot.

Figure 1 is a longitudinal section through a pen embodying my invention; Fig. 2 is a longitudinal section taken at right angles to Fig. 1; Fig. 3 is a section on the line $x-x$, Fig. 2; Fig. 4 is a section on the line $y-y$, Fig. 2.

3 designates the barrel of the pen which contains the usual ink reservoir 4, and 5 designates the nozzle or removable section which is shown as connected to the barrel 3 with an ordinary screw joint 6 and which receives the feed 7 and the pen point 8. These are the parts which are usually found in fountain pens and, with the exception of the feed, they may be of any suitable or usual construction.

The feed is provided with the usual ink duct 9 which conducts the ink from the ink reservoir 4 to the pen point. In my improved pen I form the feed 7 with the auxiliary chamber 10 which extends clear through the feed from the top to the bottom thereof. This chamber is preferably larger in its cen-

tral portion than at its ends, although the exact contour is not essential. The feed 7 is flattened or cut away at 11 on both its upper and its lower side, and each flattened portion extends substantially the length of the slot 10 and terminates at each end in walls or shoulders 12. The inner end of the feed 7 which has a slot therein fits the interior of the removable section 5, and, therefore, the portions 11 where the feed is cut away form with the interior of the removable section chambers which communicate with the slot 10, these chambers and the slot 10 forming an auxiliary ink reservoir capable of containing several drops of ink. This auxiliary ink reservoir communicates with the ink duct 9.

The feed 7 does not extend clear through the removable section, but instead the inner end of the feed is situated a short distance in from the inner end of said removable section. Extending longitudinally through the feed and slidably mounted therein is a valve stem 13 carrying at its inner end a valve 14 which is adapted to close the inner end of the removable section 5 when the stem is withdrawn, as shown in Fig. 2, thereby cutting off communication between the ink reservoir 4 and the feed duct 9. By forcing the stem 13 inwardly, the valve is carried away from the inner end of the removable section 5, thus opening communication between the ink reservoir and the feed duct. This is the position of the parts when the pen is in use. When the pen is not in use, the valve 14 may be seated against the inner end of the removable section by drawing the valve stem outwardly and the pen may then be carried either end up without any danger that it will leak.

I prefer to make the valve stem with the head or knob 15 at its end in order to facilitate the operation of the valve. The valve 14 may be of any suitable construction but I have herein shown it as comprising a ring of cork 16 which is confined on the valve stem 13 between two hard rubber washers or disks 17. The cork being elastic will make a tight joint with the end of the removable section. The knob 15 is situated beneath the exposed end of the feed and the valve may, therefore, be operated by a person's thumb or finger without danger of soiling his hands.

Since the feed is formed with an auxiliary ink chamber 10 situated between the valve

and the pen point, it will be observed that the feed duct always has communication with this reservoir and therefore if a person only wishes to use the pen for a short time, such as would be consumed in writing his name, or writing a check, it is unnecessary to open the valve 14, for there will be a sufficient supply of ink in the auxiliary reservoir to last for a short time. I find that the presence of this auxiliary reservoir prevents the pen from flooding for it constitutes a small chamber for receiving the last few drops of ink, which are those that produce the objectionable flooding or blotting, and owing to the comparatively small size of this auxiliary chamber, these last few drops will be held therein by capillary attraction and will not, therefore, be fed from the pen faster than the ink is used. I find also that the shape as well as the location of the auxiliary chamber assists materially in preventing flooding, for the auxiliary reservoir herein shown presents a large wall area relative to its size, and this increases the capillary attraction above referred to. The valve device herein shown can also be used to regulate the flow of ink to the pen. A fine pen uses less ink than a coarse or a stub pen does, and by providing the valve herein shown it is possible to use the same feed with either a coarse or fine pen by simply adjusting the valve closer to or farther from the end of the removable section. If a fine pen is being used the valve may be adjusted so that it will be nearly closed, in which case the ink will be fed to the pen only as fast as it is used. If a coarse pen is being used the valve may be opened entirely.

I have shown herein one embodiment of my invention and do not wish to be limited to the constructional details illustrated.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a fountain pen, the combination with a barrel containing a main ink reservoir and a feed bar provided with a feed

duct and a slot extending from one side to the other thereof and communicating with the feed duct and constituting an auxiliary ink reservoir, of a valve stem extending through the feed, and a valve at the end thereof adapted to close communication between the main reservoir and the feed duct while leaving the auxiliary ink reservoir in communication with said feed duct.

2. In a fountain pen, the combination with a barrel containing a main ink reservoir, of a removable feed-sustaining section secured to the barrel, a feed bar in said removable section, said feed bar being provided with a feed duct and also being chambered intermediate of its ends to provide an auxiliary ink reservoir which communicates with said duct, a valve stem extending longitudinally through the feed bar and slidably mounted therein, a valve at the inner end of the valve stem which is adapted to seat against the inner end of the removable section thereby to close communication between said auxiliary ink reservoir and the main ink reservoir.

3. In a fountain pen, the combination with a barrel constituting a main ink reservoir, of a feed provided with a feed duct and also provided with a slot extending transversely therethrough from one side to the other, which slot communicates with the feed duct, said feed being flattened or cut away at each side, as at 11, whereby an auxiliary reservoir is formed having a large wall area relative to its capacity, a valve stem extending through the feed from one end to the other and movable relative to the feed, and a valve on said stem adapted to close communication between the feed and the main ink reservoir.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

MARTIN R. CROSSMAN.

Witnesses:

LOUIS C. SMITH,

THOMAS J. DRUMMOND.