(No Model.)

P. E. WIRT.

FOUNTAIN PEN.

No. 526,427. Patented Sept. 25, 1894.

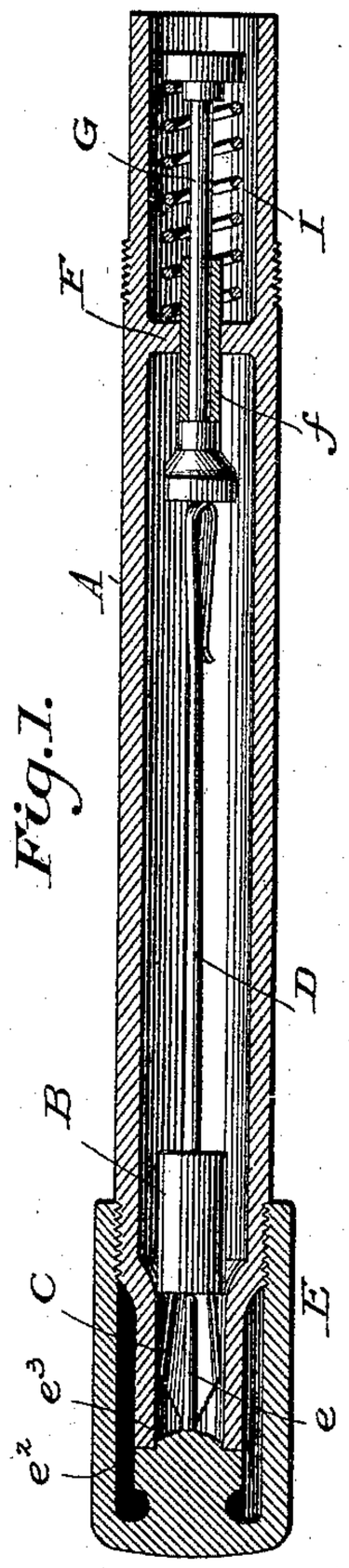

Fig. 1.

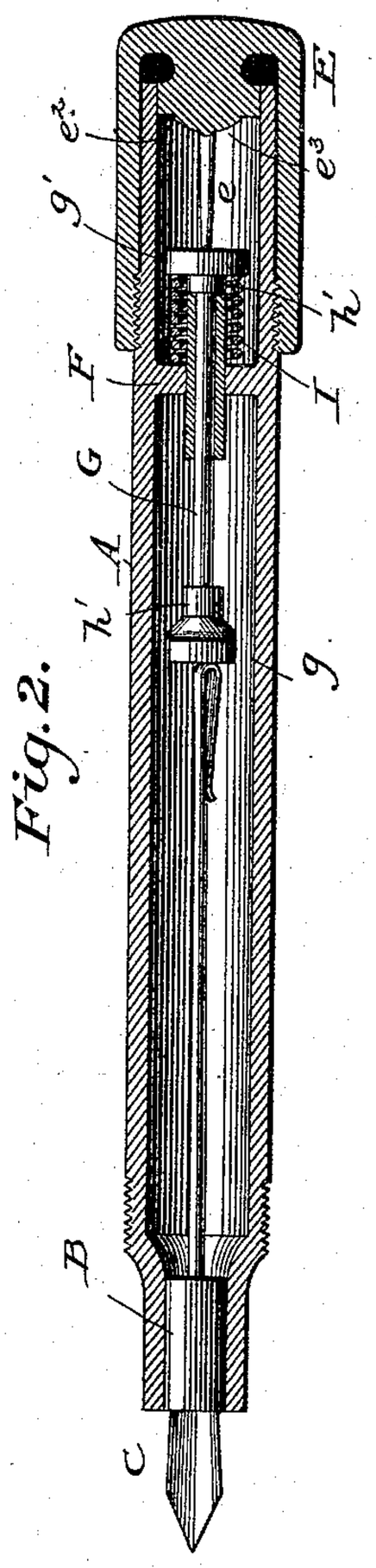

Fig. 2.

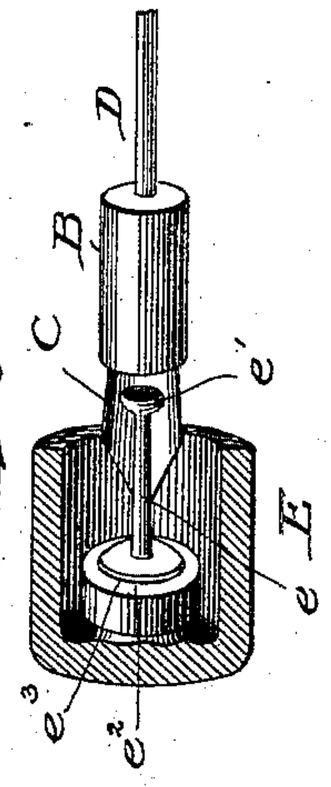

Fig. 4.

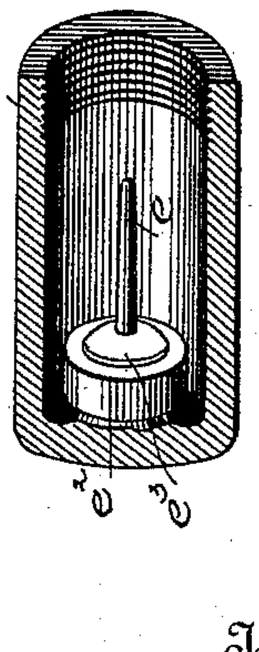

Fig. 3.

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UNITED STATES PATENT OFFICE.

PAUL E. WIRT, OF BLOOMSBURG, PENNSYLVANIA.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 526,427, dated September 25, 1894.

Application filed December 4, 1893. Serial No. 492,767. (No model.)

To all whom it may concern:

Be it known that I, PAUL E. WIRT, of Bloomsburg, county of Columbia, and State of Pennsylvania, have invented a new and useful Improvement in Fountain-Pens, of which the following is a specification.

My invention relates to fountain pens, and has reference more particularly to that type of pens described and claimed in an application filed by me on the 26th day of August, 1893, Serial No. 484,106, and in an application of even date herewith, Serial No. 492,766. The pens described in these applications comprise a reservoir in the form of a tube and a movable pen and conductor shaft, the construction of the parts being such that when not in use the pen point is contained within the reservoir and kept moist by the surrounding ink, so that when it is projected beyond the reservoir for use, the ink will instantly flow to the moist point and permit writing without delay.

The present invention relates to certain improvements in pens of the character described and has reference more particularly to the mechanism for projecting the pen from the reservoir, to the form of the cap for closing the ends of the same, and to other details as will be more fully described hereinafter and claimed.

In the accompanying drawings, Figure 1, is a longitudinal central section partly in elevation through a fountain pen having my invention embodied therein, the pen point being in the position it will occupy when not in use within the reservoir. Fig. 2, is a similar view with the pen point projected beyond the reservoir ready for use. Fig. 3, is a perspective sectional view of my improved cap. Fig. 4, is a modification of the same.

Referring to the drawings, A represents a tube of hard rubber or any other appropriate material constituting the reservoir for the ink, which is open at its forward end where its internal diameter is reduced as shown.

B represents a plug or stopper containing a longitudinal opening in which a pen C and an overlying conductor shaft D are fixed, the latter serving to lead the ink through the opening in the plug to the pen. The plug is of a size externally to fit within the reduced end of the reservoir and close the same, and when in this position the pen will be projected beyond the reservoir ready for use, as shown in Fig. 2. When not in use the pen, conductor shaft and plug are pushed bodily backward within the reservoir, until they are in the positions shown in Fig. 1, the ink surrounding the point of the pen and keeping the same moist, and the reservoir being closed by a cap E, more fully described hereinafter.

In order that when the pen is to be used it may be projected forward from the reservoir to the position shown in Fig. 2, I provide the reservoir near its rear end with a partition F which has formed therein an opening in which is fixed a tube *f* extending longitudinally of the reservoir. Within this tube a rod G is mounted to slide back and forth, and is of such size that it will fit snugly therein and prevent the passage of ink between its outer surface and the inner surface of the tube. This rod is provided at opposite ends with heads *g*, *g'*, and at the inner sides of the head, the rod is provided with two stoppers *h*, *h'*, adapted to abut alternately against the ends of the tube *f*, as the rod is moved back and forth, and to effectually seal the same to prevent the passage of any ink that might escape around the outer surface of the rod. A spiral spring I encircles the rear end of the tube and bears at its opposite ends against the partition F, and the head *g'* on the rod, and tends normally to force the rod rearward with its stopper *h*, against the inner end of the tube.

The head *g* carried by the rod within the reservoir is adapted to abut against the rear end of the conductor shaft, so that when the rod is pushed forward, the conductor shaft will be pushed before it, and the plug B forced within the reduced end of the reservoir with the pen point projected beyond the same ready for use, the stopper *h'* on the rod abutting at the same time against the rear end of the tube *f*, and tightly closing the same, as shown in Fig. 2.

In the accompanying drawings I have represented the conductor shaft and connected parts as free and disconnected from the projecting mechanism, and this in order that the said parts may be removed bodily from the reservoir when the latter is to be filled, or for any other reason, but it will be readily understood that the conductor shaft may be con-

nected at its rear end without affecting the operation of the parts, as pointed out, except that in the latter case the spiral spring would act to withdraw the pen and the conductor within the reservoir while under the construction first described, it will be necessary to force them rearward from the front.

In order that the pen may be conveniently projected forward for use by the mechanism described, I form the cap E before referred to on its interior with a central finger *e*, and provide the interior of the cap with threads adapted to engage external threads *a* at the rear end of the reservoir, the arrangement being such that as the cap is screwed on to the reservoir, the end of the finger will abut against the exposed head *g* on the sliding rod, and will force the latter forward against the tension of the spring, thereby pushing the conductor shaft forward until the plug is seated in the end of the reservoir with the pen projected for use. On the removal of the cap from the rear end of the reservoir, the spring in resuming its forward expanded position, will draw the sliding rod rearward, and the cap being applied to the front of the reservoir, the end of the finger will abut against the front of the plug B, adjacent to the pen, and will force the same rearward within the reservoir, as shown in Fig. 1.

I propose in certain cases, to insure the contact of the end of the finger with the end of the plug, to provide the former with a head or enlargement e', as shown in Fig. 4.

In order that when the pen is not in use the open end of the reservoir may be effectually sealed, I provide the cap on its interior with a solid raised surface e^2, which is separated from the interior of the cap, which raised surface is adapted when the cap is in place to abut against the end of the reservoir and close the same, and I form on this raised surface a permanent convex projection e^3, adapted to extend into the end of the reservoir when the cap is in place, as shown in Fig. 1. It has been found that this convex projection will in connection with the solid flat surface effectually seal the end of the reservoir, so that there is little or no liability of leakage therefrom.

From the above description it will be seen that the cap is of such construction that two sealing surfaces are formed, one between the end of the reservoir and the solid surface e^2, and the other between the exterior of the permanent raised surface and the interior of the reservoir, so that there will be no liability of any ink escaping from the reservoir when the cap is in place.

Having thus described my invention, what I claim is—

1. In a fountain pen the combination with the reservoir open at its front end, the movable pen adapted when not in use to be located within the reservoir, the opening at the rear of the reservoir, the rod for projecting the pen forward mounted to slide back and forth in said opening, and means carried by the rod for alternately closing the ends of the opening.

2. In a fountain pen the combination of the reservoir open at its front end, the movable pen adapted when not in use to be located within the reservoir, the opening at the rear end of the reservoir, the rod for projecting the pen forward mounted to slide back and forth in said opening, and provided with means for alternately closing the end of the same, and the spring acting on said rod.

3. In a fountain pen the combination of the reservoir open at its front end, the movable pen, the conductor shaft connected thereto, the tube extending from within the reservoir to its outside, the rod adapted to engage the conductor, and mounted to slide back and forth in said tube, the stoppers on the rod in position to abut against the ends of the tube as the rod is moved to and fro, and the spring acting on said rod and tending to retract the same.

4. The combination with a reservoir open at its front end, of a movable pen adapted when not in use to be located within the same, a plug carrying said pen and adapted to fit within the end of the reservoir when the pen is projected for use and a cap provided with a finger or projection to engage the plug.

5. The combination with a reservoir open at its front end, of a pen, a conductor shaft and a plug connecting said parts and adapted to fit within the end of the reservoir, a cap to close the end of the reservoir and provided with a finger to engage the end of the plug.

6. The combination with a reservoir open at its front end, of a pen, a conductor, and a plug connecting the pen and conductor, and adapted to fit within the end of the reservoir and a cap provided with a finger having on its end a head adapted to engage the end of the plug.

7. In a fountain pen the combination of a reservoir open at its front end, a movable pen adapted when not in use to be located within the reservoir and to be projected forward for use, a conductor connected to the same, and a movable rod for projecting the pen, said rod having one end arranged within the reservoir in position to engage the conductor and its opposite end exposed.

In testimony whereof I hereunto set my hand, this 27th day of October, 1893, in the presence of two attesting witnesses.

PAUL E. WIRT.

Witnesses:
C. W. FUNSTON,
W. E. SHAFFER.