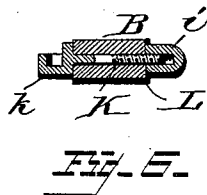
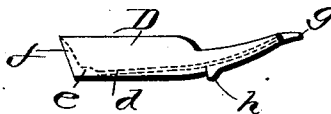
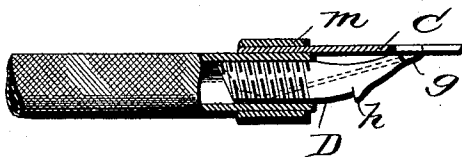
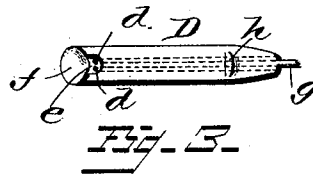
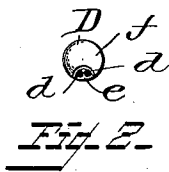
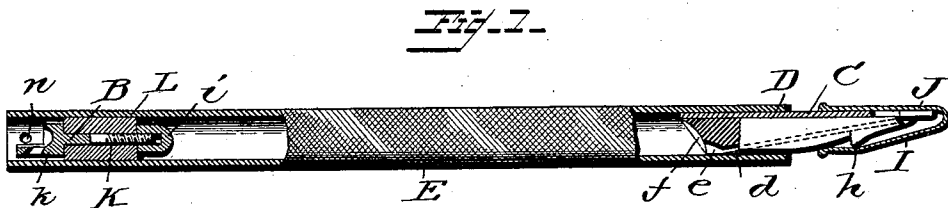


(No Model.)

A. F. SPERRY.
FOUNTAIN PEN.

No. 470,082.

Patented Mar. 1, 1892.



Witnesses
Albert Spinden
Van Buren Hillyard.

Inventor
Andrew F. Sperry.
By his Attorneys
R. & A. Lacey

UNITED STATES PATENT OFFICE.

ANDREW F. SPERRY, OF WASHINGTON, DISTRICT OF COLUMBIA.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 470,082, dated March 1, 1892.

Application filed October 30, 1891. Serial No. 410,341. (No model.)

To all whom it may concern:

Be it known that I, ANDREW F. SPERRY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Fountain-Pens; and I do hereby 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 fountain-pens of that class in which for convenience of mechanical construction the writing end of the reservoir-handle is provided with a removable conductor or plug through which the ink is conveyed to the pen. Obviously the said conductor or plug and the handle may be formed together without departing from the spirit of the invention; but it is preferred to have the conductor or plug removably attached to the handle.

The object of the invention is to secure a proper flow of ink and a delivery of the same to the pen at or near the writing-point only, thereby permitting the use of ordinary steel pens and any commercial ink.

A further object of the invention is to prevent contact of the ink with the pen except practically at the aforesaid point of delivery of the conductor or plug and between the said point and the writing-point of the pen, thereby bringing a minimum amount of surface of the pen under the direct action of the ink.

It is essential in the use of pens constructed of the baser metals—such as steel, brass, or a composition of copper and other metals—that the surface exposed to the action of the ink be as small as practicable to prevent impairing the action of the pen by disintegration of the ink or corrosion of the pen; hence the necessity in the construction of fountain-pens of the character proposed that the ink come in contact with as little surface of the pen as possible consistent with convenience in the use of the pen.

The improvement consists, essentially, of a conductor having two ink-conduits formed through it, the said conduits being independent of each other and of equal carrying capacity, having the receiving ends brought as close together as possible and receiving the ink

from a channel or recess formed in the butt of the pen, as hereinafter more particularly described.

The improvement further consists of the novel features and the peculiar construction and combination of the parts, which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a side view of a pen constructed in accordance with my invention, parts being broken away and shown partly in section to illustrate the details of construction. Fig. 2 is a view of the butt-end of the conductor or plug. Fig. 3 is a bottom plan view of the conductor or plug. Fig. 4 is a detail view of the writing end of the pen, showing a modified form of construction. Fig. 5 shows a side view of a further modified form of conductor or plug. Fig. 6 is a sectional view of a modified form of plunger. Fig. 7 is a view of an instrument for operating the plunger.

The handle E is of a tubular form and constitutes the reservoir for the ink. The conductor or plug D is located at one end of the handle, and the other end of the said handle is open to permit the insertion of a plunger B. The pen C, which may be any common steel or composition pen, is secured to the handle in any convenient manner, either by means of the conductor or plug D, as shown in Fig. 1, or by means of a sleeve *m*, as shown in Fig. 2, or otherwise, as may be desired. The conductor or plug D may be slipped into the handle and held therein by friction, or may be exteriorly threaded and screwed into the said handle, and is made tapering toward the delivery end. The tapering end may be straight on the side designed to come opposite the pen, as shown in Fig. 1, or may be somewhat concave on the said side, as shown in Figs. 4 and 5, in order to allow for variations in the shapes of pens. The conduits *d d*—two, at least, are essential to the efficient working of the pen, although more may be provided, if desired—are of proper size and equal or practically equal carrying capacity and extend throughout the greater part of the length of the conductor or plug. The receiving ends of the conduits are brought as close together as possible; but the discharge or delivery ends need not necessarily be so close together. The

conduits are separate and independent from the receiving to the delivery end, and their receiving ends communicate with the small end of a slightly-flaring recess or channel *e*, which is projected from the concavity *f* in the butt-end of the conductor or plug. The butt-end of the conductor is made oblique and depressed between its edges, the greatest depth of the depression or concavity coinciding with the receiving end of the recess or channel *e*. The recess or channel *e* is located at the bottom side of the conductor or plug, because this relative position has been found to give the best results. The manner of forming the conduits in the conductor is immaterial so long as they are closed on all sides, and the plug prevents contact of the ink with the pen except at or near the writing-point of the pen. The partition *g*, between the conduits at the delivery ends, is prolonged somewhat, so as to aid in conducting the ink to the point of the pen. The projection *h* on one side—the bottom side being preferable because it will not interfere with the free use of the pen—of the conductor forms a rest for the thumb to obtain a purchase upon when removing the conductor from the handle, and also serves as a retaining-point for the cap *J* to spring over and prevent the said cap from slipping off. The cap *J* is of soft rubber or other suitable material and is sufficiently large to protect the point of the pen and conductor when the pen is not in use. The plunger *B* is expansible and is composed of a rod *K*, having a head *k* of suitable shape at one end and having its other end threaded and provided with the nut *i* and the yielding block *L*, which is mounted on the rod and held between the head *k* and the nut *i*. Obviously on screwing up the nut on the rod *K* the block *L* is compressed in the direction of its length and expanded laterally, thereby permitting compensation for wear and the adaptation of the plunger for easy motion within the handle and for handles having bores of slightly-different cross-sectional area. The plunger is advanced within the handle at convenient intervals as the ink is consumed to expel the superfluous air and is manipulated by a suitable instrument, a rod, as *G*, having a hook at one end, being well adapted to the purpose because the hooked end can be engaged with the plunger for the purpose of filling the pen by suction in the manner of a common syringe or for any other purpose. To prevent pulling the plunger entirely out, a common pin may be inserted in the small hole *n* at the outer end of the handle, when desired.

The operation of the pen is as follows: The reservoir is filled with ink in the usual manner, either by removing the plug and filling the handle from the open end or by dipping the point of the plug into the ink and drawing the plunger from the writing end of the handle to the butt-end thereof. When the pen is brought to a writing position, the ink

enters the single channel or passage *e* and is conveyed to the receiving ends of the conduits *d d* and enters and fills said conduits simultaneously, the ink being retained therein by capillary attraction and atmospheric pressure. In service the ink is drawn from the pen in the usual manner and the equilibrium of the columns of ink in the conduits *d d* is disturbed, the ink being supplied in proper quantity by one conduit and air entering the reservoir through the other conduit to prevent the formation of a vacuum and take the place of the displaced ink. The plunger is advanced in the handle at proper intervals to expel the surplus air and prevent the formation of a too large air-space.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a fountain-pen, the combination, with the reservoir-handle and the writing-pen, of a feeder consisting of a plug having a passage leading from the butt-end and having two conduits of nearly equal carrying capacity communicating with said passage and constructed to supply the ink to the pen at or near the writing-point, substantially as set forth, for the purpose described.

2. In a fountain-pen, an ink-conductor having two independent conduits formed through it, the conduits being approximately of equal carrying capacity and having the receiving and the delivery ends, respectively, in close relation, and having a channel at the butt-end of the conductor which communicates with the receiving ends of the said conduits, substantially as and for the purpose described.

3. In a fountain-pen, the combination, with the handle, of a conductor removably attached to the said handle and provided with projection *h* for the finger to obtain a purchase on when removing the conductor from the handle, and a flexible cap adapted to be sprung over the said projection and be retained in position thereby, substantially as described.

4. In a fountain-pen, an ink-conductor having its butt-end oblique and provided with a concavity and a channel and having two independent conduits formed through the said conductor and communicating with the said channel, the conduits being approximately of equal carrying capacity and having the delivery ends in close relation and adapted to supply the ink to the pen at or near the writing-point, substantially as and for the purpose described.

5. In a fountain-pen, the combination, with the reservoir-handle and the writing-pen, of a conductor having a series of conduits of nearly equal carrying capacity formed through it, the delivery ends of the conduits being in close relation and constructed to supply the ink to the pen at or near the writing-point, and having a partition projected from the delivery end of the conductor, substantially as set forth, for the purpose described.

6. A fountain-pen comprising a handle, hav-

ing a hole near the outer end to receive a pin
for the purpose hereinbefore specified, having
a pen and a conductor at the opposite end,
the conductor having two conduits of nearly
5 equal carrying capacity formed through it,
the receiving and the delivery ends of the said
conduits being in close relation, and an ex-
pansible plunger within the said handle, com-
posed of a rod threaded at one end and hav-
10 ing a suitable head and a yielding block on

the said rod, and a nut on the threaded end
of the rod to compress the said yielding block,
substantially as set forth.

In testimony whereof I affix my signature in
presence of two witnesses.

ANDREW F. SPERRY.

Witnesses:

VAN BUREN HILLYARD,
FRANK H. BURNS, Jr.