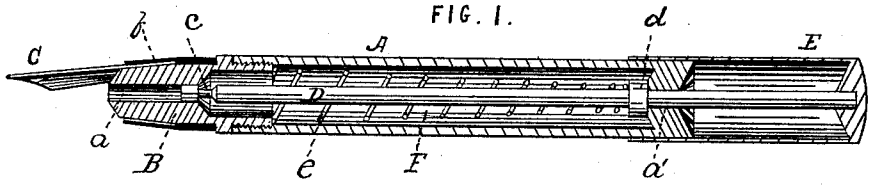
(No Model.)

J. H. CROWELL.

FOUNTAIN PEN.

No. 395,695. Patented Jan. 8, 1889.

FIG. 1.



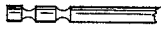


FIG. 2.

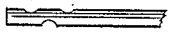


FIG. 3.

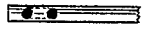


FIG. 4.

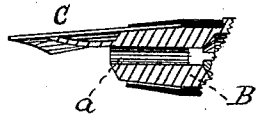


FIG. 5.

WITNESSES.
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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 395,695, dated January 8, 1889.

Application filed March 15, 1886. Serial No. 195,260. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. CROWELL, a citizen of the United States, residing at Vineyard Haven, in the county of Dukes and State of Massachusetts, have invented certain new and useful Improvements in Fountain-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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Heretofore reservoir fountain-pens have been constructed on the general plan of having the ink flow by gravity and capillary attraction from the reservoir to the pen by means of some kind of a continuous connection from the reservoir to the pen, whether that connection be a covered or an open conduit, or both, or one opened and closed by a valve. In either case there is that continuous connection between them, in the use of which much difficulty has been experienced from its becoming closed by the sediment or the solidifying of the ink in it.

My improvement of mechanically taking a given quantity of ink from the reservoir and conveying it to the pen without its having to flow in or on a continuous connection completely obviates this difficulty.

My invention is also an improvement over many, if not all, reservoir fountain-pens now in use, because of its being free from vent-holes, which at times allow the ink to leak out and soil the hands, and by its not being confined to the use of one style of pen, and in its admitting of being used as an ordinary pen and holder which takes its supply of ink (and, if need be, of a different color) from any ink-receptacle, which obviates the necessity of so frequently filling the reservoir.

Now my invention, as mentioned above, relates to an improvement in fountain-pens; and the specific objects of my improvement are, first, to mechanically separate and convey a given quantity of ink from the reservoir to the pen; second, to provide a reservoir that will be free from vent-holes and practically ink-tight; third, to construct a fonntain-pen that will admit of the use of an ordinary pen, and, fourth, to construct a fountain-pen that will admit of being used as an ordinary pen and holder. I attain these objects by the mechanism and construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the entire pen. Figs. 2, 3, and 4 are longitudinal sectional views of different forms of the end of the sliding rod, and Fig. 5 is a longitudinal sectional view of the extension of the tip to the pen.

The holder A is provided with a screw-tip, B, the outside shell or clip of which is made in any convenient form, that will receive and hold an ordinary pen, C, straight or cause it to incline its end in toward the central longitudinal axis of the holder.

Through the longitudinal center of the tip B and the end of the holder A opposite said tip are cylindrical holes *a a'*, into which is fitted the round sliding rod D, which when in its normal condition enters said tip B a short distance and extends through the holder to the sleeve-cap E, to which it is secured. Said sleeve-cap E is made so that it will slide on the outside of the holder A. In said rod D, near its end and just inside of the reservoir F, is constructed an annular groove, *c*, which I prefer to use in the present instance, though any kind of a cavity in the end of the rod that will leave the very extreme end that is inside of the hole *a* in tip B solid would answer the purpose, some of which, for illustration, are shown in Figs. 2, 3, and 4. Around that portion of said rod D which is inside of the reservoir F and nearest the sleeve E is secured the collar *d*, between which and the tip B is held the spiral spring *e*.

The reservoir F is opened so as to be filled with ink by unscrewing the tip B.

When ink is required on the pen C, the holder A must be turned to an angle of about forty-five degrees, with said pen C down and below the longitudinal axis of the holder, which position will cause the ink in the reservoir F to run down to and fill the annular groove *c* and surround the rod D, excepting that portion which is inside of the hole *a*, which acts as a valve to prevent the ink from running through said hole. Now by pressing with the finger on the sleeve-cap E, which

is attached to rod D, the end of said rod, with its score *c* filled with ink, moves into the hole *a*, and as soon as score *c* has passed into said hole then follows the solid portion of the rod, which completely shuts off and separates the ink in the score from that in the reservoir. As the rod continues to be pressed down by the finger, it is moved through the hole *a* and out of the end of tip B to the pen C. Now by the action of gravity the ink in said score *c*, after it leaves the lower end of tip B, will form somewhat in the shape of a drop on the extreme lower end of the rod, and which by the downward motion of said rod is brought in contact with and deposited upon said pen C. Thus it will be seen that a given quantity of ink is completely taken mechanically from the reservoir F and deposited on the pen C, which is the first-mentioned object of my improvement.

In the downward movement of the rod D the spiral spring *e* is compressed between the collar *d* and inner end of tip B, and which upon being released carries the rod D back to its former position, with the collar *d* pressed against the upper inner end of the reservoir F, which, with said collar *d*, not only acts as a stop to the return motion of the rod, but also acts as a valve which makes an additional safety against any leakage of ink from the reservoir, more especially when the pen is carried in the pocket pen end uppermost, and also the spring not only returns rod D, but by placing the spiral spring *e* inside of the reservoir F it will act as an agitator of the ink, thus keeping it from becoming thick and ropy.

When the rod D is being moved by the spring *e* from its extreme outward thrust back to its first or former position, the score *c* carries into the reservoir F the same in quantity of air that was taken from it of ink, thus maintaining in said reservoir a constant atmospheric pressure, thereby doing away with the necessity of vent-holes that are used in other fountain-pens and accomplishing the second object of my improvement.

My invention of voluntarily taking and conveying mechanically a given quantity of ink from the reservoir F to the pen C not only admits of the use of an ordinary pen, thus fulfilling the third object of my improvement, but also admits of being used as an ordinary pen and holder by having the rod D remain in its normal condition and thereby allow the supply of ink for the pen to be taken from any ink-receptacle, thus accomplishing the fourth object of my improvement.

Now I do not wish to restrict myself exclusively to the use of the arrangement described above of taking a given quantity of ink from the reservoir and conveying it the whole distance from the reservoir to the pen, because my improvement is equally as well adapted to deposit the ink, after it has separated it from the reservoir and conveyed it through the tip B, upon the surface of an extension of either the pen or tip that will make a connection between the end of the sliding rod and the pen, and by means of which the ink will flow to the pen, as shown in Fig. 5.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a fountain-pen, the combination, with the holder and reservoir, of a rod constructed to be moved longitudinally in said holder and reservoir, and provided with a cavity near its end which receives a given quantity of ink from the reservoir, and which from pressure applied longitudinally to said rod mechanically separates from the reservoir and conveys to or toward the pen said given quantity of ink, substantially as and for the purpose specified.

2. In a fountain-pen, the combination, with the holder A and reservoir F, of the longitudinally-sliding rod D, which has constructed in it near its end an annular groove or cavity, *c*, and which extends through the reservoir into the tip B and to the cap E, substantially as described.

3. In a fountain-pen, the combination and arrangement of the holder A, reservoir F, longitudinally-sliding rod D, provided with the cavity *c*, spiral spring *e*, collar *d*, and tip B, substantially as and for the purpose described.

4. In a fountain-pen, the combination of the holder A, reservoir F, longitudinally-sliding rod D, with its annular groove *c*, spiral spring *e*, collar *d*, tip B, with its sleeve *f*, pen C, and cap E, all arranged and operated substantially as and for the purpose described.

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

JOHN H. CROWELL.

Witnesses:
F. A. SMITH, Jr.,
CHARLES GREENE.