

(No Model.)

L. E. WATERMAN.
FOUNTAIN PEN.

No. 293,545.

Patented Feb. 12, 1884.

Fig. 1.

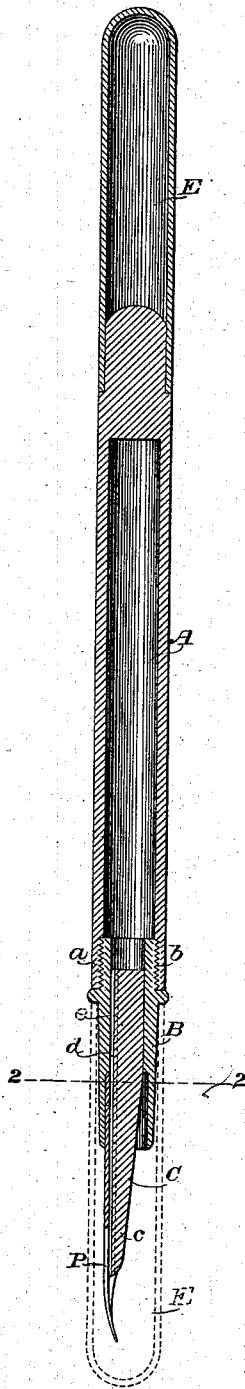
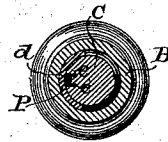


Fig. 2.



WITNESSES

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LEWIS E. WATERMAN, OF BROOKLYN, NEW YORK.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 293,545, dated February 12, 1884.

Application filed September 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. WATERMAN, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention relates to that class of fountain-pens in which the nib of the ordinary writing-pen is supplied with fluid ink from a barrel or reservoir, which may conveniently form the handle or holder of the pen.

The object of the invention is to secure and automatically regulate a certain and uniform flow of ink to the pen, and also to prevent the excessive discharge of the ink when the pen is in use. By my invention a fountain-pen composed of but comparatively few parts is produced, and the general construction of this class of pen greatly improved and simplified.

The subject-matter claimed as new will be hereinafter specifically designated.

In the accompanying drawings, which illustrate my invention, Figure 1 is a longitudinal section of my improved fountain-pen, and Fig. 2 is a cross-section on the line 2 2 of Fig. 1.

Referring to Fig. 1, A represents a barrel or tube for containing the ink, and it may be formed of rubber or other suitable material. A tubular piece, B, preferably of the same material as the barrel A, is shouldered and screw-threaded at *b*, and is made to fit within the correspondingly-threaded extremity *a* of the barrel A. The feed-piece which I employ for conveying the ink from the barrel A to the nib of the pen P consists of a bar, C, formed of rubber or other suitable material, having one extremity, *c*, tapering conically from one side to the other of the body C. The other extremity of the body is formed to fit tightly within the tubular piece B. The upper side of the bar C is provided with a groove, *d*, extending throughout its entire length. The depth of this groove preferably gradually decreases as it approaches the extremity *c*. I form one or more very narrow slits or fissures, *e e*, (see Fig. 2,) longitudinally throughout the length of the groove *d*, as shown, for facilitating the flow of ink to the pen, as hereinafter described. The pen P, which may be of any of the forms in common use, is secured

between the pieces B and C, as shown in Fig. 1, and a portion of the lower surface of the pen projecting from the tube B is in contact with the upper and somewhat flattened surface of the bar C. If, now, the barrel A be partly filled with ink, and the parts assembled as in Fig. 1, the pen will be ready for use, the ink being supplied to the nib in the following manner: The downward flow of the ink by gravity and through the action of capillary attraction in the act of writing causes it to pass through the groove *d*, and tends to create a vacuum within the reservoir, which is met by the influx of air passing upward through the groove. The direction of the current of air entering the ink-reservoir being opposite to that of the outflowing ink, the volume of the latter is somewhat lessened, and excessive discharge prevented. The motion caused by the receding and advancing of the lower surface of the pen from and toward the bar C, caused by the ordinary operation of writing, increases the flow of ink from the barrel and permits the steady supply of the ink to the slot in the pen, from whence it is conveyed to its point and to the surface being written upon.

It may be observed that the tendency to a heavy and excessive flow of ink, caused by amplified motion of the pen or otherwise, will be compensated by an increased influx of air through the groove *d*, to fill the vacuum tending to be produced within the reservoir, thus retarding the flow and automatically regulating the same. It may also be stated that air-bubbles, which usually form within and greatly impede the discharge of ink through the ink-duct, are in my invention pressed to one side of the duct, and their onward movement greatly accelerated by the outflowing current of ink. The narrow slits or fissures *e e*, which are made in the groove *d*, and which extend deeper into the groove *d* than the bottom of the groove *d*, serve to facilitate the downward flow of the ink which first follows these narrow channels, and thus the descending column of ink is kept on that side of the groove, the ascending column of air keeping on the other side of the groove.

A cap, E, is employed for protecting the nib of the pen when not in use. The cap may be placed upon the extremity of the barrel

when the pen is being used, and when in such position it serves to lengthen the holder.

By my invention I do away with the tubular ink-duct usually employed in connection with pens of this class, and which has heretofore been objectionable for the reason, among others, that it is very liable to conduct more ink to the nib than is necessary. The gradual decrease in size toward the nib of the ink-conducting groove in my improved pen provides against the excessive flow of ink, which, by reason of a large portion of the groove being in direct contact with the pen, a sufficient quantity of ink is supplied.

I do not intend to confine myself to the precise construction shown in the drawings or described herein, as it is obvious that the same may be modified without departing from the principles of my invention. The form of the ink-duct may be modified, and, instead of one groove being formed in its upper surface, several may be employed, and the number and size of the fissures in said groove or grooves may be varied, if desired.

I hereby disclaim, so far as this specification and these Letters Patent are concerned, all inventions which are shown, described, and claimed, or to be claimed in an application of which this is a division, filed by me June 20, 1883.

I claim as my invention—

1. An ink-duct for a fountain-pen, consisting of a bar having a longitudinal groove formed in its surface and one or more longitudinal fissures in the side or sides of said groove, substantially as set forth.

2. In a fountain-pen, the combination, substantially as hereinbefore set forth, of a barrel or ink-reservoir, a tube connected therewith, an ink-duct supported within said tube, and consisting of a bar having one or more longitudinal grooves formed in that portion of its surface which is in proximity to the pen, with one or more longitudinal fissures in the side or sides of said groove or grooves, and a pen secured between said tube and ink-duct.

3. A fountain-pen having an ink-duct provided with one or more longitudinal fissures formed in its walls, for facilitating the passage of the ink through said duct.

In testimony whereof I have hereunto subscribed my name this 18th day of September, A. D. 1883.

LEWIS E. WATERMAN.

Witnesses:

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