No. 670,088. Patented Mar. 19, 1901.

H. W. STONE.

FOUNTAIN PEN.

(Application filed Feb. 1, 1900.)

(No Model.)

Fig: 1.

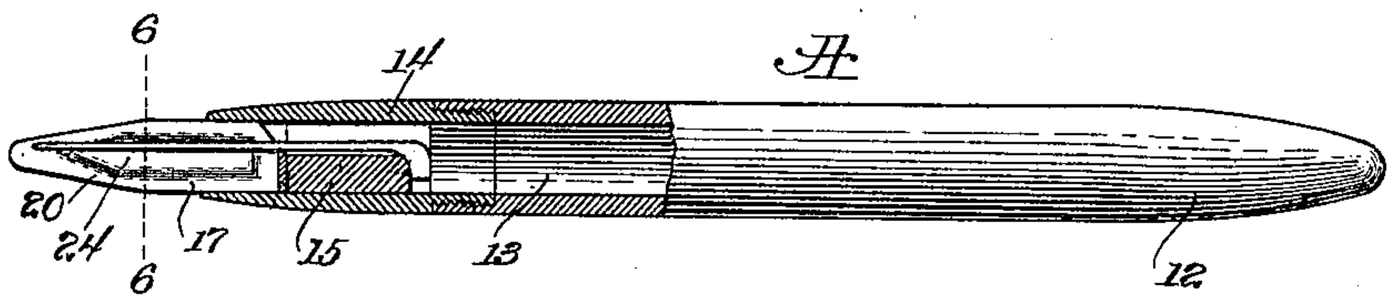

Fig: 2.

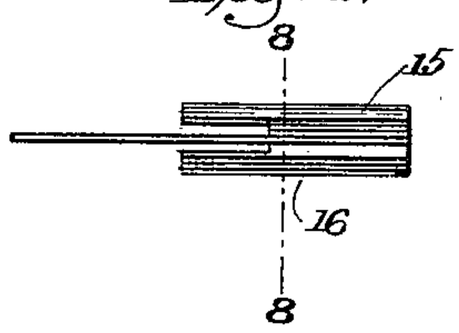

Fig: 3.

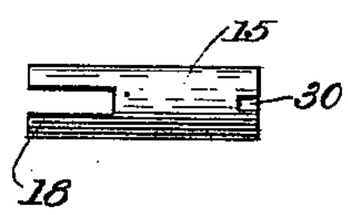

Fig: 7.

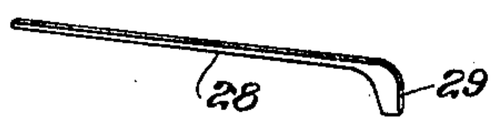

Fig: 4.

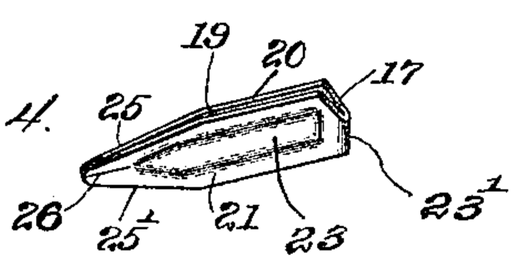

Fig: 5.

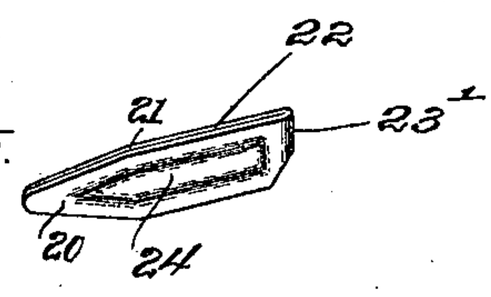

Fig: 6.

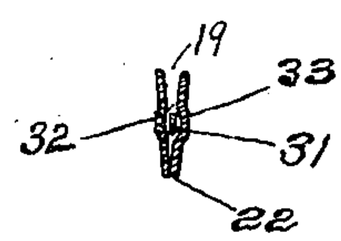

Fig. 8.

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HARRY W. STONE, OF SOMERVILLE, MASSACHUSETTS.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 670,088, dated March 19, 1901.

Application filed February 8, 1900. Serial No. 4,442. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. STONE, a citizen of the United States, residing at Somerville, county of Middlesex, State of Massachusetts, have invented an Improvement in Pens, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to pens, and some of the features thereof are of peculiar adaptability to fountain-pens, the construction being such that in use a steady uniform flow of the ink is assured and the writing device or pen proper is ready for service at any moment, and not only this, but the latter can be used with facility either for writing, marking, or ruling, and the lines to be formed can be made of a great variety of sizes.

The invention is shown in one simple embodiment thereof in the accompanying drawings, wherein—

Figure 1 is a side elevation of a fountain-pen, the fore part thereof being broken away and in central section to more clearly show the improvements. Fig. 2 is a plan view of a feed device and reed attached thereto. Fig. 3 is an under side view of said feed device. Figs. 4 and 5 are perspective views of the writing device as seen from above and below, respectively. Fig. 6 is a transverse section through the writing device, taken in the line 6 6, Fig. 1, and slightly enlarged. Fig. 7 is a perspective view of the reed detached. Fig. 8 is a transverse section in the line 8 8, Fig. 2.

The pen illustrated is of the fountain type, and it is denoted in a general way by A, it including in its construction a holder or handle, as 12, the latter being longitudinally chambered or bored, as at 13, to provide a reservoir to receive the ink to be delivered to the writing device or pen proper connected with said holder. The nozzle or sleeve 14 is shown as being in screw-threaded engagement with the forward end of the holder and constitutes a part thereof, said nozzle being removable to permit the supply of ink to the reservoir 13. The sleeve or nozzle 14 receives a suitable feed device, as 15, the latter being shown as consisting of a bar snugly fitted in said nozzle and longitudinally channeled or grooved, as at 16, upon its upper side.

The writing device or pen proper is denoted by 17, and in the present case it is connected directly with the feed device 15, said feed device being notched or recessed, as at 18, to receive said writing device or pen proper and the latter being channeled, as at 19, for its entire length. The feed device is usually made of hard rubber, and it is shown as being of cylindrical form; but for durability I prefer to make the writing device or pen proper of some suitable metal and may tip it, if desired, with some hard substance, such as iridium. The writing device, therefore, is connected with the feeding device, so that these two parts are in the nature of a continuous member, each having a channel, and the channels are in longitudinal alinement.

The writing device is composed of two substantially duplicate sections or leaves, as 20 and 21. The two sections are closely adjacent or contiguous and they are closed upon the under side, as at 22. This closure can be secured in any convenient manner—say by applying a thin film of solder to the engaging faces of the parts near their lower edges.

The writing device shown is stamped readily in one piece from sheet metal and is bent upon itself near its middle, as at 23′, to form the similar leaves or sections alluded to, though it is obvious, of course, that the invention is not limited to making this member in one piece.

As previously set forth, the feed and writing devices constitute, substantially, a single member having a continuous groove or channel along the upper side from end to end thereof, and it is down this channel or groove that the ink flows toward the point of the pen when in use and through it the air passes up to prevent a vacuum in the ink-reservoir.

To increase the effectiveness of the pen proper, the sections or leaves thereof are shown as having elongated bulges or pockets, as 23 and 24. This materially increases the ink capacity of said part, so that the same can receive from the reservoir a comparatively large volume of ink to be supplied to the working or marking end thereof, the pen being in this respect in the nature of a reser-

voir itself. This is important in heavy-line work, where the maximum of ink-supply must be maintained, as otherwise the markings would be faint or ragged. The bulges also materially strengthen the pen at the walls or sides thereof.

The writing device is shown as oppositely beveled, as at 25 and 25′, formed in the present case upon straight lines and extending rearward from the tip. Both of these beveled portions can be used for marking.

The pen or writing device is shown as closed along one edge thereof, herein shown as the lower edge, except the beveled portion 25′, which is slightly open, while the upper edge is represented as being open its entire length. It follows, therefore, that when the beveled portion 25 is laid edgewise and squarely upon and drawn over a piece of paper more ink will flow onto the paper than if the beveled portion 25′ be employed, as the pen is entirely open upon its upper side. Naturally the line made in the first case will be much heavier than in the second. The lines can be varied within considerable limits by regulating the angle of presentation of the beveled faces 25 and 25′ to the paper simply by tipping the holder. If the latter be truly perpendicular and the extreme points only of the pen be used, a very fine or hair line can be formed, the points being specially sharpened for that purpose. I provide means for securing a heavier line than can be made by either of the beveled working faces 25 or 25′. The section 21 of the pen proper has a capillary slit 26 extending rearward from its tip, which serves an important function, for it converts said section 21 into a writing member. By bringing said part against and drawing it over the paper the ink flows to the tip of the pen from its opposite open edges and through the capillary opening 26, and coming as it does from three sources a very coarse line can be made.

From the previous description it will be evident that the writing device has a cavity its entire length and width nearly closed along one edge and its other edge being open the entire length thereof, whereby both edges may be utilized in the formation of lines.

In order to promote the feed of ink to the writing device, I may employ a reed, and this may be of any kind. That represented (see Fig. 7) is denoted by 28, and it is of reduced size, it being fitted in the channels 16 and 19, respectively, of the feed and writing devices and extending longitudinally in these parts, which are rigidly united, though they may be readily detached The reed is in the nature of an auxiliary feed device, and it is preferably connected with the feed device or bar 15, it having at its inner end a depending offset, as 29, adapted to be snugly but preferably removably seated in a recess, as 30, in the inner end of the cylindrical feed device or bar 15. The reed is suspended in the channels of the feed device and trough-like writing device, and it is so located as to provide a capillary subchamber 31 beneath the same and the ink-supply duct 32 above the same, the latter being of comparatively large cross-sectional area. Between the edges and end of the reed and the walls of the two connected channels 16 and 19 there is a reduced passage 33, through which the ink is drawn from the subchamber 31 beneath the reed, so as to moisten the walls of the duct 32 and also the upper surface of the reed when such chamber is filled with ink. This peculiar action takes place not only when the pen is in actual use, but when it is laid aside, so that the writing device may be relied upon for use at any time without shaking the holder to secure the feed of the ink, as is often necessary in other forms.

The action and location of the reed are substantially the same as that shown in Letters Patent No. 638,779, granted December 12, 1899, to A. A. Waterman.

The pen hereinbefore described is simple, can be made at a low cost, the writing end or point thereof is always in condition for use without the necessity of shaking the holder, the appliance as a whole is durable, and either side or edge of the pen proper can be employed for different purposes. Therefore it will be evident that my invention includes as one of its features a writing device consisting of two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other.

The invention may be modified within the scope of the accompanying claims.

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

1. A writing device consisting of two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, in combination with a channeled feed device to which the writing device is connected, a reed fitted in the channel of the feed device and extending forward therefrom and being disposed between the sections of the writing device and a reservoir to supply ink to the feed device.

2. A writing device consisting of two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, and one only of said sections being slitted at its tip, in combination with a channeled feed device to which the writing device is connected, a reed fitted in the channel of the feed device and extending forward therefrom and being disposed between the sections of the writing device and means to supply ink to the feed device.

3. A writing device consisting of two substantially similar sections separated from

each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, said sections each having a central bulge extending longitudinally thereof, the said bulges being opposite to each other and in alinement, the side edges and tip of each section being flat.

4. A pen, comprising two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, said sections each having a central bulge extending longitudinally thereof, the said bulges being opposite to each other and in alinement, the side edges and tip of each section being flat, and the tip of one section only being slotted.

5. A writing device consisting of two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, in combination with a handle having a reservoir, a feed device in the handle connected with the writing device, having a channel, and a reed lying in said channel and projecting forward therefrom and being disposed between the sections of the writing device.

6. A writing device consisting of two substantially similar sections separated from each other along their opposite edges, the length of separation along one edge being greater than that along the other edge, said writing device being beveled oppositely from its tip, and one only of the sections having a capillary slit, in combination with a channeled feed device connected with the writing device, a reed fitted in the channel, the reed projecting forward from the feed device and being disposed between the sections of the writing device and means to supply ink to the feed device.

7. In a pen, a feed device, and a writing device, one of said parts having a notch at one end to receive the other, each of said devices being channeled, the said channels being in alinement and serving to conduct the ink to the point of the writing device, a reed provided with a projection fitted in a notch in the rear upper side of said feed device, said reed extending forward therefrom and lying in the channels of both parts, and means to supply ink to the feed device.

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

HARRY W. STONE.

Witnesses:
GEO. W. GREGORY,
MARGARET A. DUNN.