

UNITED STATES PATENT OFFICE.

LAFOREST A. SHATTUCK, OF BLOOMSBURG, PENNSYLVANIA.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 390,039, dated September 25, 1888.

Application filed July 16, 1888. Serial No. 280,056. (No model.)

To all whom it may concern:

Be it known that I, LAFOREST A. SHATTUCK, a citizen of the United States, residing at Bloomsburg, in the county of Columbia and State of Pennsylvania, 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.

My invention relates to fountain-pens; and it consists, first, in the combination, with an ink-reservoir handle having a lower end or point constituting a combined pen-lock and ink-feed portion having an air-vent and ink-passage, of a valve-seat, an independently-adjustable feed-bar passed through the ink-passage and having in itself or forming with the walls of the said passage an ink-channel, and a valve for lessening or increasing the flow of the ink from the reservoir-handle; second, in the combination, with an ink-reservoir handle having a lower end or point constituting a combined pen-lock and ink-feed portion formed with an air-vent and ink-passage, of a valve-seat, an independently-adjustable feed-bar passed through the ink-passage, a valve, and an ink-conductor; third, in the combination, with the upper ink-reservoir portion of the handle, of a lower end or point constituting a combined pen-lock and ink-feed portion formed with an air-vent and ink-passage, and longitudinally adjustable, of a valve seat, a longitudinally-adjustable feed-bar, and a valve, whereby the flow of the ink can be increased or decreased while using the pen, and the flow of the ink entirely cut off when the pen is not in use and carried about the person; fourth, in the combined lock and feed portion of the ink-reservoir handle provided with oppositely divergent or lateral branch grooves or channels communicating with the main air-vent, whereby any ink which may incidentally pass from the reservoir-handle into the main air-vent will be conducted to the back of the pen and utilized, thus freeing the air-vent of obstructions which would prevent the passage of air into the reservoir as ink flows therefrom; fifth, in the combination of the several parts of the fountain-pen, as will be herein-

after described, whereby it is adapted for being operated at will with either a single or double feed, the feed when single being either an upper or lower one, and at the same time each of the feed portions being adjustable and the flow of the ink capable of being increased or decreased by operating one of the feed portions while the pen is in use, and the entire flow capable of being shut off when the pen is out of use by operating either of the feed portions.

In the accompanying drawings, Figure 1 is a longitudinal central section of the fountain-pen as adjusted for use. Fig. 2 is a similar broken section of the same as out of use. Fig. 3 is a cross-section in the line *xx* of Fig. 1, looking forward. Fig. 4 is a cross-section in the line *yy* of Fig. 1, looking backward. Fig. 5 is a detail elevation of the combined lock and feed portion and the adjustable feed-bar, valve, and conductor, said bar being moved back as when the pen is operated with a single feed. Fig. 6 is a top view of the same, the valve-conductor being removed. Fig. 7 is a bottom view of the construction shown in Fig. 6. Fig. 8 is a detail top perspective view of the adjustable feed-bar; and Figs. 9, 10, and 11 are figures illustrating proposed modifications of my invention.

A represents the reservoir-handle, formed, preferably, with a filling-opening at its top, which is closed by a plug, *a*. Its lower end portion, *A'*, is constructed of a tapering form and this portion *A'* is attached to the main portion *A* by a screw-thread, as at *b*. The said portion *A'* is preferably constructed in two parts and connected by a screw-thread, as at *c*, for a purpose hereinafter described. Within the portion *A'* a device, *C*, which I term a "combined lock and feed portion," is fitted snugly, so as to be held securely in place by friction or otherwise. This portion *C* comprises a tubular body, *d*, a forward-extending feed-tongue, *d'*, corresponding in form substantially to the pen proper, *D*, which may be used in connection with the handle, and having in its under side a concavity, *d^b*, corresponding with a portion of the bore *d^b* of the tubular body *d*, as shown. It also comprises a rear extension or tongue, *d^c*, of greater length than the tongue *d'*, and on the under side of this exten-

sion or tongue d^2 a nearly semi-cylindrical concavity, d^3 , is formed, corresponding with a portion of the bore d^4 of the body d , as shown. This extension terminates beyond its concave portion with a screw-threaded shank, d^1 , and on the same a valve, E, is fastened, said valve being preferably prolonged into an ink-conductor, E', as shown.

In the periphery or top of the cylindrical body d a longitudinal passage, g , of flaring or other suitable form, and two reversely divergent or lateral grooves or channels, g' g' , are provided, the groove g , when inclosed by the lower point or portion, A', of the handle A, forming the air-vent to the reservoir-handle, while the grooves g' g' serve as relief passages for any ink which may pass from the reservoir-handle into the vent-passage g , such ink being conducted to the back of the pen proper, D, where it works under the pen d' and is utilized. At the forward end of the body portion d a transverse slot, h , is cut, bisecting the end of the body into two nearly upper and lower portions and forming a seat for the shank of the pen D, as shown; and at right angles, or nearly so, to this slot another slot, h' , Fig. 7, is cut down to the ink-passage, so as to bisect the rear end of the body d as far forward as the heel of the pen and thus communicate with the ink-passage through the said body portion. This slot serves for increasing the capillary surface toward the pen and forms a vent for any air-bubbles which may be lodged between the feed and the tongue d' .

In the main portion of the handle A, and some distance in rear of the body d , a ring-shaped valve-seat, F, is fitted, and through this seat the tongue d^2 is passed before the valve E is fastened to it. This arrangement of the valve-seat forms an ink-accumulation chamber, N, between the said portion d and the valve-seat F, and thereby a more regular and constant supply of the ink to the pen is effected, and at the same time room for the circulation of air is afforded. The ink and air meeting in this chamber and flowing in opposite directions, one passage through the valve-seat and one valve will answer all purposes.

The valve E might be constructed in form of a button with either a conical or flat face, instead of terminating in a long tapering ink-conductor portion, E'. It might also be formed integrally with the shank of the tongue d^2 ; but the preferable construction is that shown, as by means of the conductor the ink has a larger capillary surface, whereby it is conducted to the ink-passage and pen.

In combination with the combined lock and feed device C a feed-bar, I, is employed. This bar is semi-cylindrical on its under surface, and fits a portion of the bore of the body portion d , being held therein by frictional contact, so that while it can be moved independently of said body portion by hand force it shall move with said body portion when said

body portion is moved, as hereinafter described. On the upper surface of this bar I a channel, m , extending from its rear end to within a short distance of the forward end, m' , is provided. The bar terminates just forward of the rear slit in the end of the pen. At the forward end of the bar a nick, n , is cut, whereby, with a knife or other instrument, it can be adjusted back or forward so as to control the flow of ink to the under surface of the pen, and, when desired, close the valve and entirely cut off the supply of ink. The bar can also be moved by means of this nick so as to change from a double to a single feed, as illustrated in Fig. 5, and from a single to a double feed pen at will.

By referring to Figs. 1 and 2 of the drawings it will be seen that the lower end or point portion, A', of the reservoir-handle is made in two parts and connected by a screw, c , and by reason of this construction and the fact that the said portion A', the combined lock and feed device C, and the feed-bar I are held sufficiently united by frictional contact, the valve E can be closed so as to entirely shut off the supply of ink by simply unscrewing the front end of the portion A' from the position shown in Fig. 1 to that shown in Fig. 2, and the pen can be instantly brought into operative condition and the valve reopened by readjusting said portion to the position shown in Fig. 1. This mode of operating the valve for entirely shutting off the supply can be adopted when the valve is attached to the combined lock and feed portion or to the feed-bar I, as shown in Fig. 9; but with the construction shown in Fig. 11 the operation of entirely shutting off can be only effected by means of the nick n , as the valve closes in a reverse direction to that shown in Fig. 9. The bar I can be made the upper feed by simply withdrawing the pen, turning the combined lock and feed portion one-half around, and then readjusting the pen to its position.

In Figs. 9 and 10 I have shown the valve formed on the feed-bar I, the connecting portion between the valve being channeled, same as at m , Fig. 8, and occupying the chamber N between the valve-seat and the body portion d of the combined lock and feed device C. With this construction the extension or tongue d^2 of the combined lock and feed device is cut away, as shown in the figure, and room thereby afforded for the accumulation of ink and the circulation of the air which enters at the vent g , and thus a more perfect flow of the ink to the pen is effected.

In Fig. 11 another modification is shown similar to that shown in Figs. 9 and 10, with the exception that the valve E is arranged forward of the seat instead of in rear of it, and plays in the chamber N, between the combined lock and feed device C.

What I claim as my invention is—

1. The combination, with an ink-reservoir handle having a combined lock and feed de-

vice, C, of a valve-seat, F, and independently-adjustable feed-bar I passed through the ink-passage, and a valve, E, substantially as described.

5 2. The combination, with an ink-reservoir handle having a combined lock and feed device, C, of a valve-seat, F, an independently-adjustable feed-bar, I, passed through the ink-passage, a valve, E, and a conductor, E', substantially as described.

10 3. The combination, with the upper ink-reservoir portion, A, of the handle, of a lower divisible end portion, A', provided with a combined pen-lock and feed device, C, and
15 adjustable longitudinally, a valve-seat, F, a longitudinally-adjustable feed-bar, I, and a valve, E, substantially as described.

4. The body portion *d* of the combined pen-lock and feed device C, provided with lateral
20 branch grooves or channels *g' g'*, communicating with a main air-vent, *g*, at the forward end of said vent, substantially as and for the purpose described.

5. The combination of the combined pen-
25 lock and feed device C, the independently-ad-

justable feed-bar I, the valve-seat F, valve E, and reservoir-handle A A', made divisible, as at *c*, substantially as and for the purpose described.

6. A fountain-pen made with a nozzle, A', 30 divisible at *c* and provided with the independently-adjustable feed-bar I, valve E, and valve-seat F, substantially as described.

7. A fountain-pen made with a nozzle, A', divisible at *c* and provided with the feed de- 35 vice C, valve E, and valve-seat F, substantially as described.

8. The fountain-pen made with a nozzle divisible at *c* and provided with the combined lock and feed device C, valve-seat F, independ- 40 ently-adjustable feed-bar I, passed through the ink-passage, a valve, E, and chamber N, substantially as described.

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

LAFORST A. SHATTUCK.

Witnesses:

J. P. THEODORE LANG,
THOS. E. WOODS.