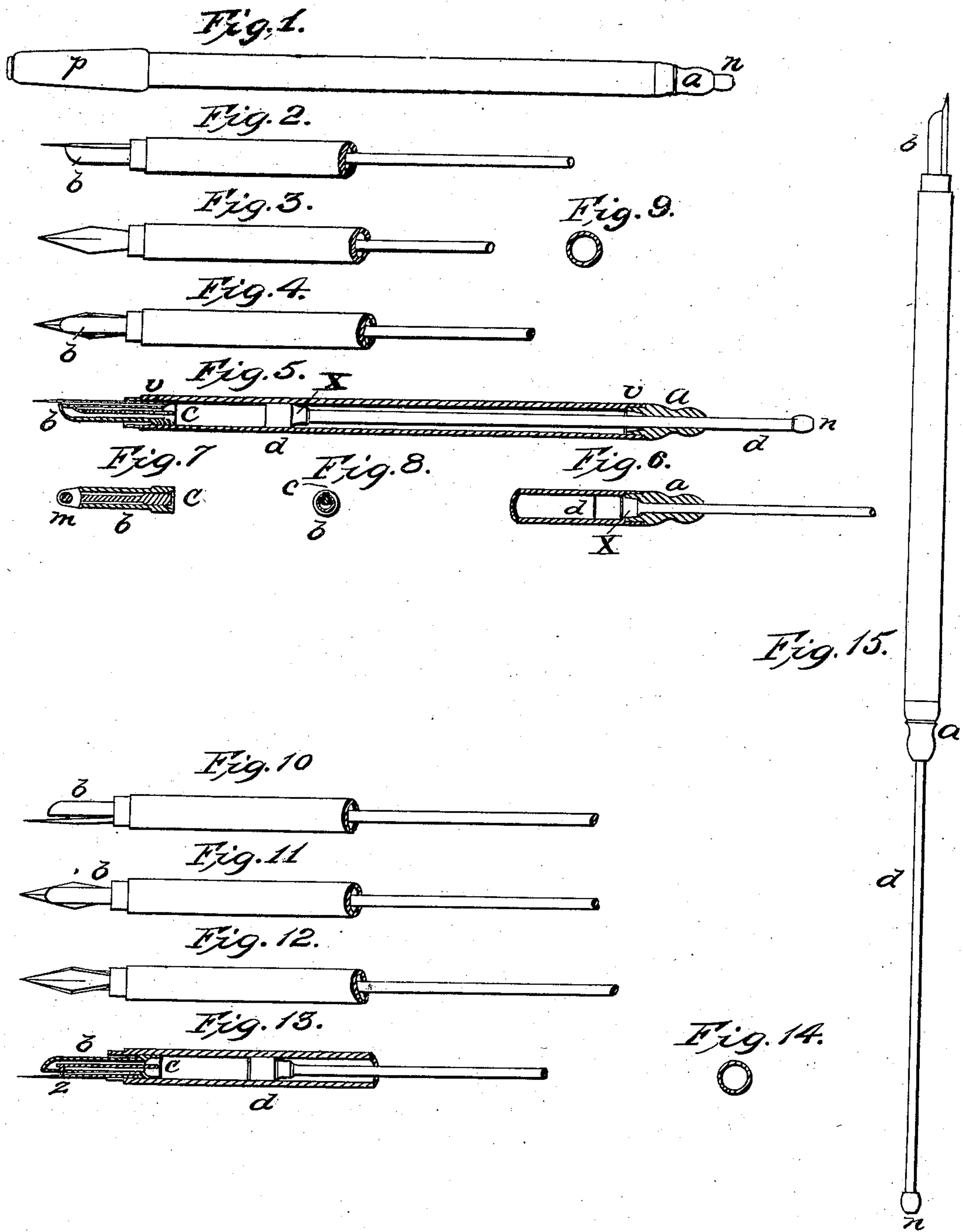


N. A. PRINCE.
FOUNTAIN PEN.

No. 12,301.

PATENTED JAN. 23, 1855.



UNITED STATES PATENT OFFICE.

NEWELL A. PRINCE, OF BROOKLYN, NEW YORK.

IMPROVED FOUNTAIN-PEN

Specification forming part of Letters Patent No. 12,301, dated January 28, 1855.

To all whom it may concern:

Be it known that I, NEWELL A. PRINCE, of the city of Brooklyn, in the county of Kings, and of the State of New York, have invented new and useful Improvements in Fountain-Pens; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and to the letters of reference marked thereon, in which drawings—

Figure 1 represents an external view of my improved fountain-pen as it appears with the cap on, when it is not charged and not in use. Fig. 2 represents a ground view or side elevation of the same with the pen placed over the feeding-tube. Fig. 3 represents a view of the same with the upper part of the pen turned toward the eye. Fig. 4 represents a view of the same with the under part of the pen turned toward the eye. Fig. 5 represents a vertical longitudinal section of my improved fountain-pen. Fig. 9 represents a cross-section of the main reservoir-tube. Fig. 6 represents a sectional view of the same, with the piston-rod drawn back. Fig. 7 represents a sectional view of the feeding-tube with an elastic spring infixed therein. Fig. 8 represents a cross-section of the feeding-tube and the spring. Fig. 10 represents a ground view of my improved fountain-pen, with the pen placed under the feeding-tube. Fig. 11 represents a view of the same with the upper part of the pen turned toward the eye. Fig. 12 represents a view of the same with the under part of the pen turned toward the eye. Fig. 13 represents a vertical longitudinal section of the same. Fig. 14 represents a cross-section of the main reservoir-tube. Fig. 15 represents my improved fountain-pen as ready for use.

The main reservoir-tube, as represented by *v v* in Fig. 5, is made of any convenient length, from four to five inches, or more, with a diameter of about a quarter of an inch. The inside surface is made as smooth as possible.

The piston-rod, as represented in Fig. 5 by *d d*, which is used in charging the main reservoir-tube with ink, is made about the same length as the main reservoir-tube, the greater part of it being somewhat less than an eighth of an inch in diameter. The lower end of

the piston-rod is made with a head, as seen in Fig. 5 at letters *d x*, which head for the most part is of the same diameter as the bore of the main reservoir-tube, or as nearly so as possible, regard being had to an easy movement of the same in the main reservoir-tube. The said head is smoothed and polished. A part of this head is made of a conical shape, as seen at *x* in Fig. 5, so as to fit tightly or ink and air tight when drawn back into the hole in the screw-cap, which is represented by *a*, as seen in Fig. 6 at *x*. The said screw-cap is made about three-quarters of an inch long, (it can be an inch or more, if necessary,) and is attached closely—that is, ink and air tight—to the upper end of the main reservoir-tube, as represented by *a* in Figs. 5 and 6. A hole is made longitudinally in the said screw-cap so large that the piston-rod may be easily moved up and down therein; but the lower part of this hole is made of a conical shape, as represented in Fig. 5, at or near *v* and *a*, so that the conically-shaped part of the piston-rod before described may fit closely into it when drawn back, as seen in Fig. 6, thus preventing the ink from escaping from or through the hole in the said screw-cap and the air from entering by the same after the main reservoir-tube has been charged. The said screw cap, after the piston-rod is passed through the hole therein and the head of the piston-rod inserted in the main reservoir-tube, must be screwed on the upper end of the main reservoir-tube so closely that no ink can pass out nor air pass in over the thread of the screw of the said screw-cap. The upper end of the piston-rod is furnished with a small screw-knob, (represented by *a* in Fig. 5,) which is screwed onto it after it is passed through the hole in the screw-cap.

In the lower end of the main reservoir-tube I insert a small feeding-tube, (represented by *b* in the sectional drawing, Fig. 5.) This tube *b* I make about an inch long, (it can be made an inch and a quarter long, if desired,) with the bore thereof nearly an eighth of an inch in diameter, passing quite through it, the said bore being larger at the upper end of the tube than below, as seen at or near *c* in Fig. 5.

Near the lower end of the feeding-tube *b*, Fig. 5, I make an orifice perpendicular to the bore of the said tube, as seen in the sectional drawings, Fig. 7, at the point *m*, from which

orifice the ink issues to feed the pen. The said orifice should be sufficiently large to give a free supply of ink.

In the feeding-tube *b*, Fig. 5, I infix a small thin, flat, and elastic spring. (Represented by *c*.) The upper part of this spring is made so wide for about a quarter of an inch in length that it may impinge on the sides of the tube, so that by pressing it in it is made fast in its position, as seen Fig. 7 at *c*. There is sufficient space left for the ink to pass down the feeding-tube above and below the spring, as seen in the tube *b* in Fig. 5. The rest part of the spring is made narrower than the bore of the feeding-tube, as seen in Fig. 7, so that it can be made to vibrate readily in the feeding-tube by the action of the pen, as I shall hereinafter show. The lower end of the spring is slightly curved or bent at nearly a right angle, so that the end of it projects through the orifice *m*, as seen in Fig. 7, and comes in contact with the under part of the pen, as seen in the tube *b* in Fig. 5, the blue line marked *c* representing the spring.

When the pen is not in use, the spring is kept pressed down somewhat by the pen; but as soon as the point of the pen is raised upward by writing the end of the spring follows it, so that the constant motion of the pen in writing aids in supplying it with ink, the ink being drawn up or attracted by the spring, and kept thus in contact with the pen. The vibration of the spring in the feeding-tube is of much importance in aiding the flowage of the ink. The end of the spring should always be in contact with the pen when the pen is placed above the feeding-tube. After the spring is infix in the feeding-tube in the manner described, the feeding-tube, containing the spring, is inserted into the lower end of the main reservoir-tube.

The feeding-tube (see *b* in Figs. 7 and 5) is made at the upper end with a diameter large enough for the distance of about a quarter of an inch to make it fit tightly in the main reservoir-tube. A small portion of the lower part of this is flattened or filed off to make room for the upper end of the pen, as seen at or near *v* in Fig. 5. The rest of the external part of the feeding-tube lying under the pen is also flattened, as seen in the tube *b* in Fig. 5. The feeding-tube for about three-quarters of an inch from its lower end is made smaller than the bore of the main reservoir-tube, so that when the feeding-tube is inserted in the main reservoir-tube for about half of an inch there is formed an "under recess," as seen at *v* in Fig. 5, which answers in part for a receptacle for the ink, which reflows when the point of the pen is turned upward, thus preventing the soiling of the fingers with ink. The pen must be fitted tightly into its socket, which socket is a part of the under-recess, the sides of the upper part of it impinging upon the inside of the lower end of the main reservoir-tube. The pen must set closely to the lower end of the feeding-tube at the ori-

fice, where the ink issues to feed it. The point of the pen should extend down over and beyond the feeding-tube a quarter of an inch, more or less, according as the pen is stiff or flexible, or so that the pen shall be readily supplied with ink, and so that the end of the feeding-tube shall not touch the paper in writing.

In Fig. 13 the spring is represented by *c*, and is infix in the feeding-tube *b* in the same manner as represented in Figs. 7 and 5 and before described. The spring is similar to that represented in Fig. 5, but is placed above the pen instead of under it, and is modified somewhat at the lower ends. A small portion of the spring extends through a small orifice in the feeding-tube *b*, Fig. 13 perpendicularly, or nearly so, to the back part of the pen, as seen at or near *Z*, Fig. 13, being made of a somewhat conical form, so that it may close up the orifice in the feeding-tube, or nearly close it, when the pen is not in use. The pen when in use strikes against the conical point of the spring, thus keeping it in motion and aiding the flowage of the ink. The orifice of the feeding-tube is made smaller when the pen is placed under the feeding-tube than when it is placed over it, as is seen by comparing Fig. 13 and Figs. 7 and 5 with reference to the orifice.

To charge the fountain-tube, the piston-rod is first pushed in, (and in doing this it must be taken by the thumb and forefinger just above the screw-cap.) The pen is then immersed in ink to the depth of half an inch or more, or so that the orifice of the feeding-tube shall be below the surface of the ink. The piston-rod is then quickly drawn outward till the conically-shaped part of it fits closely or ink and air tight in its conical seat in the screw-cap. The pen is then thoroughly wiped, so that the ink may not drop upon the paper, and is ready for use, as it is represented by Fig. 15.

A cap for the purpose of keeping the ink from drying up, as well as for protecting the pen when not in use, is placed or drawn over the pen. It should always be put on when one stops writing. This cap *p*, as seen in Fig. 1, is made to fit closely to the lower end of the main reservoir-tube, coming home to a shoulder or small elevation.

The material I use in constructing the tubes, screws, cap, and spring of my improved fountain-pen is Goodyear's patented hard rubber. I have as yet seen nothing preferable to it.

I claim as my invention or improvement and desire to obtain Letters Patent therefor—

1. The elastic spring infix in the feeding-tube, whether the said spring be placed under or above the pen, it being so placed that it is made to vibrate by the action of the pen in writing, substantially the same as described in the foregoing specification and the accompanying drawings.

2. The under-recess formed by inserting

the feeding-tube in the lower end of the main reservoir-tube, the said under recess acting as a receptacle of the ink, which reflows when the point of the pen is turned upward, substantially the same as described in the foregoing specification and the accompanying drawings.

3. The combination of the conical part of the piston-rod with a conical seat for the same in the screw-cap, so that when the piston-rod

is drawn outward in charging the main reservoir-tube with ink the hole in the screw-cap is closed ink and air tight, substantially the same as described in the foregoing specification and the accompanying drawings.

NEWELL A. PRINCE.

Witnesses:

GEO. H. BISSELL,
FRANKLIN REED.