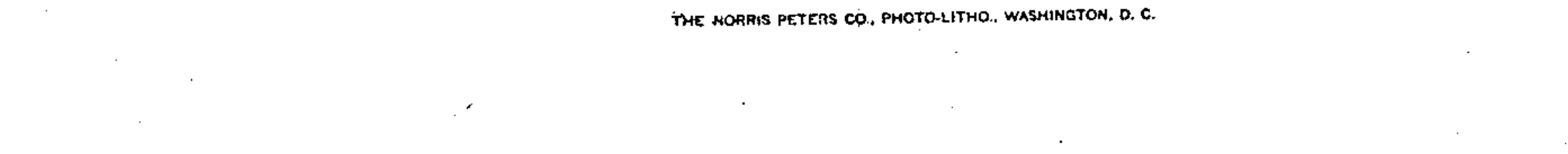
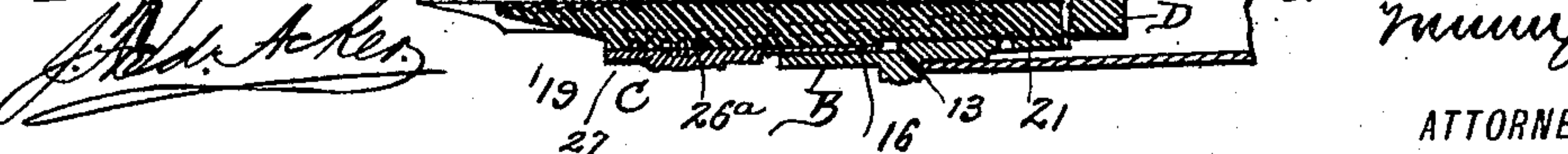
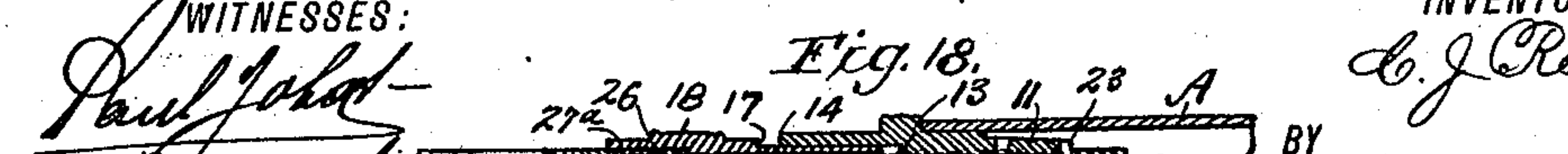
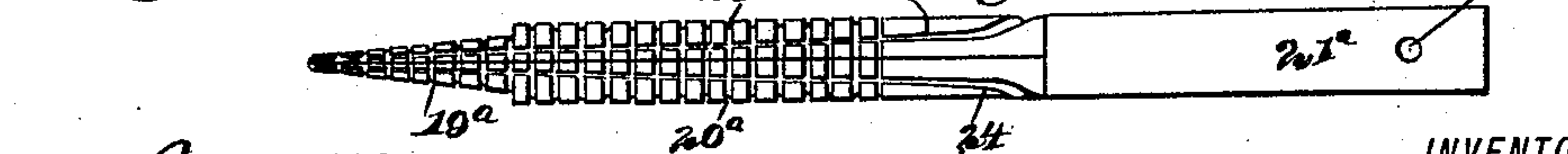
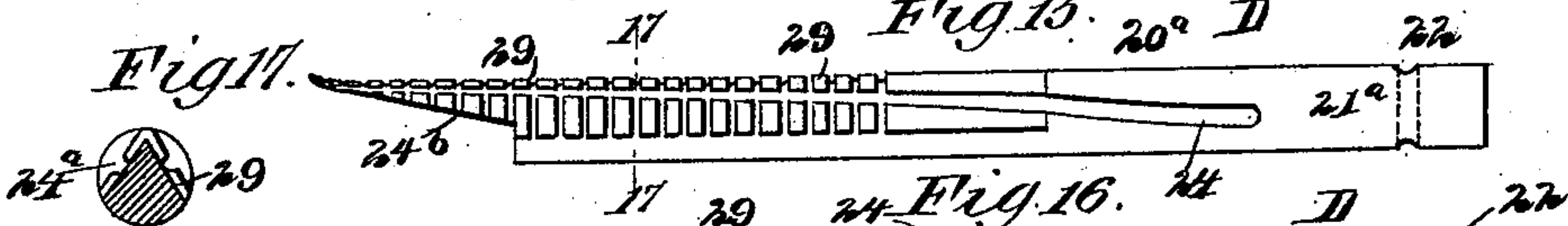
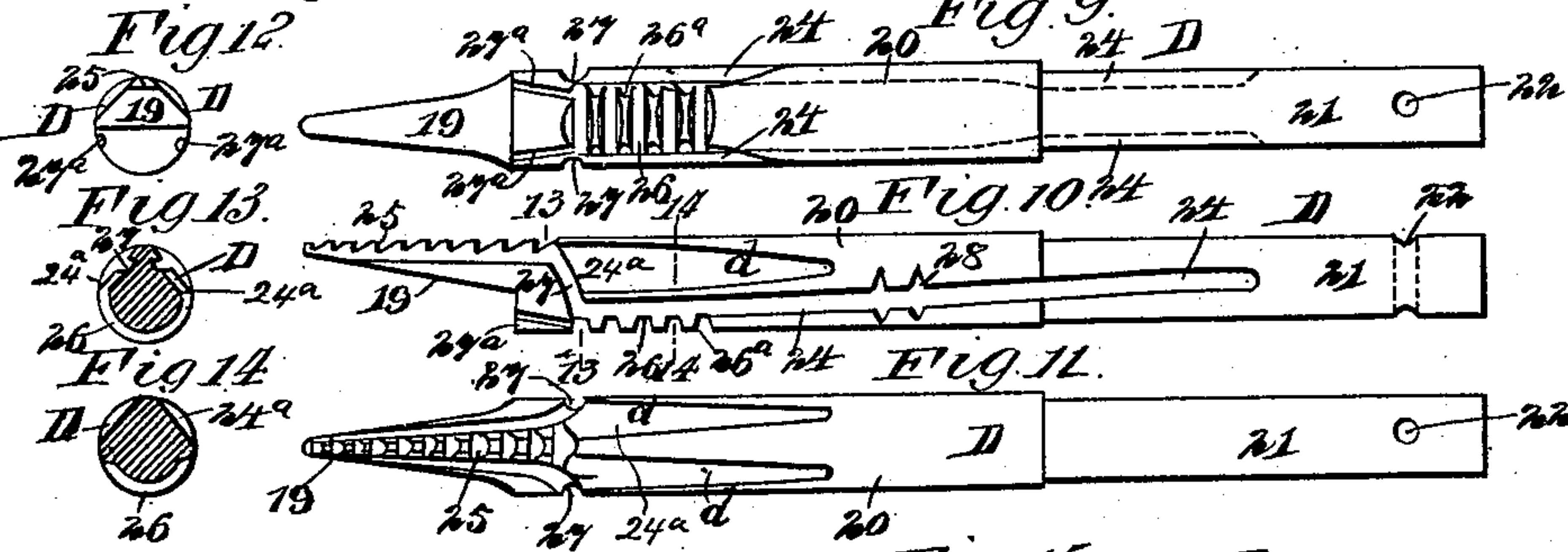
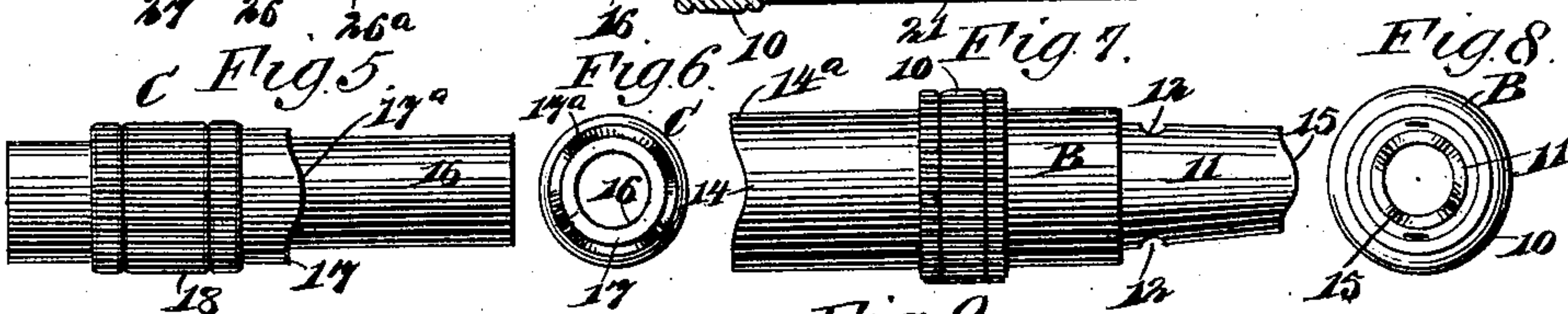
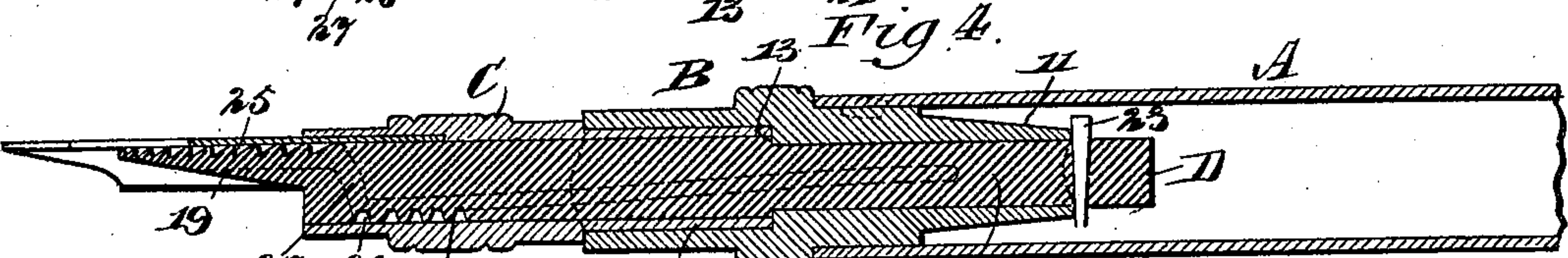
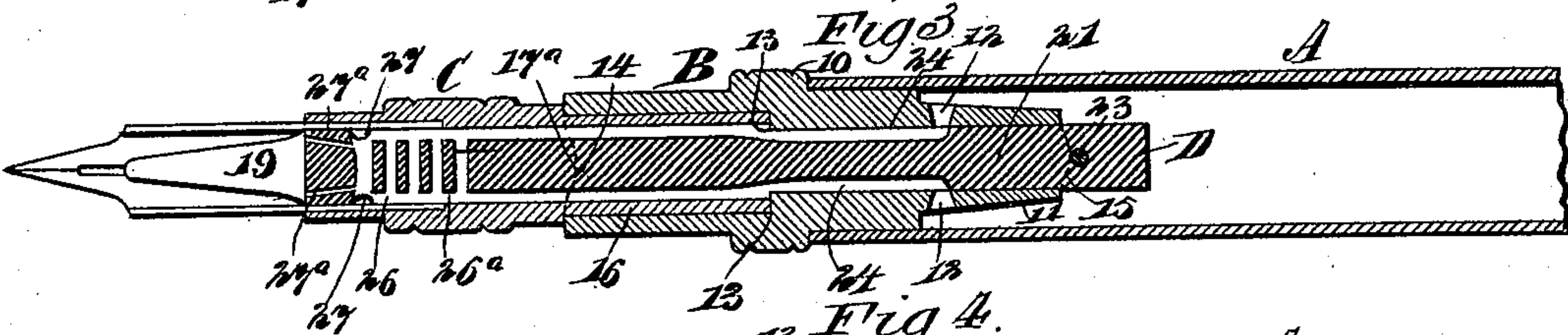
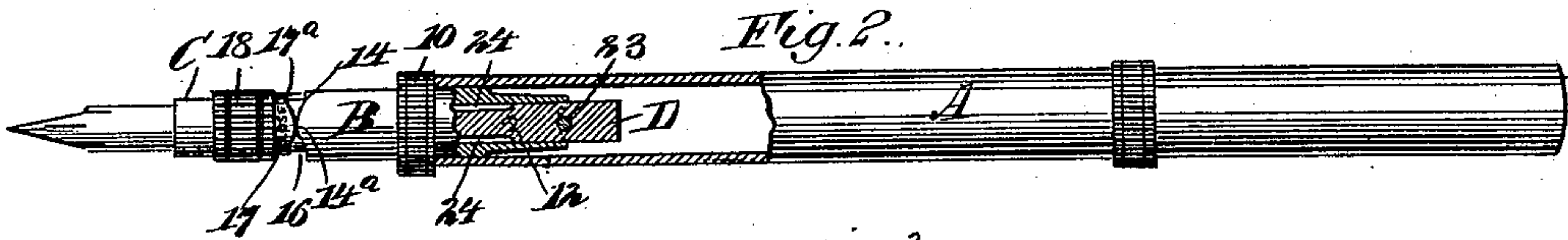
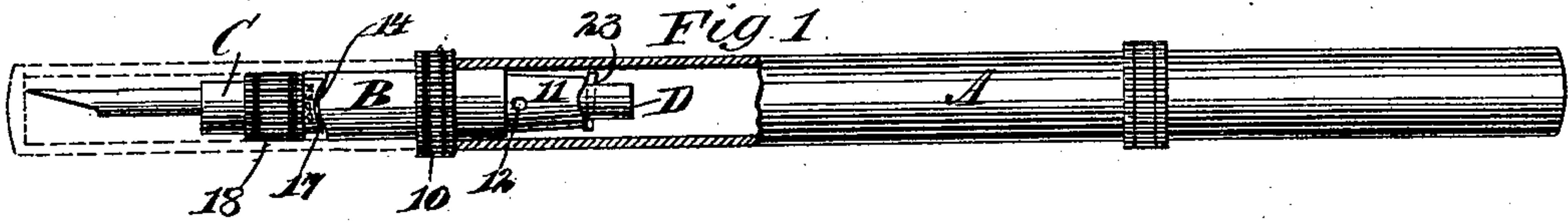


(No Model.)

C. J. RENZ.
FOUNTAIN PEN.

No. 583,771.

Patented June 1, 1897.



UNITED STATES PATENT OFFICE.

CARL J. RENZ, OF NEW YORK, N. Y.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 583,771, dated June 1, 1897.

Application filed June 11, 1896. Serial No. 595,161. (No model.)

To all whom it may concern.

Be it known that I, CARL J. RENZ, of New York city, in the county and State of New York, have invented a new and useful Improvement in Fountain-Pens, of which the following is a full, clear, and exact description.

The object of my invention is to construct a fountain-pen in a simple, durable, and economic manner and so that the pen, when the supply of ink is shut off, which is accomplished by manipulating the nib-tube, may be carried in the pocket point downward without leakage, and whereby when the supply of ink is cut off from the barrel to the nib or pen proper any surplus of ink that may be between the feeder and the pen will be automatically drawn within the casing of the pen and held in storage, to be released the moment that the supply of ink from the barrel is again opened.

A further object of the invention is to provide a feeder which will not clog and which will serve both to deliver and to store the ink, the feeder serving also, in addition to supplying ink to the pen, for regulating the supply of ink from the barrel or reservoir to its conducting-channels.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved pen, parts being broken away, the feeder being shown as open or in position to deliver ink from the reservoir to the writing nib or pen. Fig. 2 is a view similar to Fig. 1, being, however, slightly more in section and the feeder being shown in position to stop the supply of ink to the pen. Fig. 3 is a horizontal section through the casing of the pen, the feeder, and connecting parts, the feeder being in its open position. Fig. 4 is a longitudinal section through the entire pen, the feeder being in open position. Fig. 5 is a side elevation of the pen-tube of the casing. Fig. 6 is an end view of the said pen or nib tube. Fig. 7 is a side elevation of the feeder-tube. Fig. 8 is an end view of the same. Fig.

9 is a bottom plan view of the feeder. Fig. 10 is a side elevation of the same. Fig. 11 is a plan view of the feeder. Fig. 12 is a front elevation of the feeder. Fig. 13 is a section on the line 13 13 of Fig. 10. Fig. 14 is a section on the line 14 14 of Fig. 10. Fig. 15 is a side elevation of a modified form of the feeder. Fig. 16 is a plan view of the same. Fig. 17 is a cross-sectional view taken on the line 17 17 in Fig. 16; and Fig. 18 is a horizontal section of the casing-feeder and connecting parts, the feeder being in position to stop the flow of ink to the pen.

The pen may be said to consist of a barrel A, a feeder-tube B, a nib or pen tube C, and a feeder D. The barrel A is of the ordinary construction and one end of the feeder-tube B is made to enter the lower end of the barrel, being secured therein or held by frictional contact. The extreme inner end of the feeder-tube is considerably reduced and is given an exterior tapering form. It is provided with openings 12, placed usually diametrically opposite, as shown in Fig. 3, the said openings communicating with the inner chamber of the tube. The forward end of the said chamber of the tube is enlarged, forming a shoulder 13, and an annular projection 10 is formed upon the exterior of the feed-tube, against which the barrel abuts, and this projection is preferably roughened to facilitate the removal of the feed-tube from the barrel.

At the outer end of the feed-tube concavities 14 are made, as shown in Fig. 2, imparting to the said end an undulating surface, convexed portions alternating with concaved portions, and at the opposite or inner end of the feed-tube opposing convexed surfaces 15 are made, which are in longitudinal alinement with the concaved surfaces 14 at the outer end of the said body-tube.

The nib-tube C is provided with a reduced inner section 16, which enters the enlargement of the chamber of the feeder-tube, having a bearing against the interior shoulder of 13 of the same. The shoulder formed by the reduced section 16, connecting with the main portion of the nib-tube, is provided with an undulating surface corresponding to that shown and described in connection with the outer end of the feeder-tube, embracing alter-

nate concaved and convexed surfaces 17 and 17^a, as shown particularly in Fig. 5, and the outer surface of the body of the nib-tube is preferably provided with a roughened sleeve 5 18, integral therewith, in order that the said nib-tube may be revolved or turned in the feeder-tube for the purpose of regulating the supply of ink or cutting off the supply.

The feeder D (shown in detail in Figs. 9 10 and 10) is provided with an angular tip 19, which extends from the upper portion of the outer end of the body 20 of the feeder. The body is preferably circular in cross-section, or substantially so, and is provided with a rear 15 extension 21, also circular in cross-section.

Near the inner end of the extension 21 of the feeder an opening 22 is made, extending through from side to side, preferably from top to bottom, being adapted to receive a pin 23, 20 which extends beyond the top and bottom surfaces of the feeder, as shown in Fig. 4. In both sides of the feeder an ink-channel 24 is made, and this channel begins in the section 21, at a point about centrally between the 25 top and the bottom, and is given a gradual downward inclination, terminating near the bottom of the feeder back of the tip 19. In the upper surface of the tip 19 ink-receiving serrations 25 are made. Slightly at the rear 30 of the forward or outer end of the body in its bottom surface a transverse depression or recess 26 is formed, provided with a series of downwardly-extending transverse teeth or notches 26^a, forming a series of cells in which 35 the ink is stored when drawn from the nib, and this recess 26 is in direct connection with the forward or outer ends of the side channels 24, the said side channels terminating at their outer ends in said recess. Transverse 40 channels 27 are located at the forward end of the said recess 26, serving to connect the recess with the serrated surface 25 on the top of the feeder. An air-vent 27^a is made in each side of the forward end portion of the body 45 of the feeder, communicating with the forward end of the recess 26, and these air-vents are preferably given a downward and a rearward inclination, as shown particularly in Fig. 10. Above the recess 26, at each side of 50 the feeder and just back of the transverse channels 27, the side faces of the feeder are upwardly beveled, as shown at 24^a in Figs. 10 and 14, giving the upper, forward, or outer portion of the main body of the feeder a somewhat angular shape in cross-section. It may be necessary in some instances to provide for a larger storage-receptacle for the ink drawn from the nib than is located at the bottom of the feeder. In this event storage-cells 28 may 60 be produced in the side portions of the feeder, as shown in Fig. 10, the said cells being in communication with the main longitudinal ink-channels 24.

In assembling the parts of the pen the feeder 65 is placed in the nib-tube C and the nib-tube is entered into the feeder-tube so that it may be readily turned therein, and the feeder will

at that time extend outward through and beyond the inner end of the feeder-tube, whereupon the pin 23 is placed in the inner end of 70 the feeder to engage with what may be termed the "cam inner surface" of the same, and the feeder-tube is then introduced into the barrel. All of the undulating surfaces of the parts of the pen heretofore described may be termed 75 "cam-surfaces." When the nib-tube is turned so that its cam-surface receives in close manner the cam-surface at the outer end of the feeder-tube, as shown in Fig. 1, the projec- 80 tions from one surface entering the depressions in the opposing surface, the pin 23 at the inner end of the feeder, which is turned with the nib-tube, will have ridden up the inclined or convexed surfaces 15 of the feeder-tube, drawing the feeder-tube and nib-tube to- 85 gether and bringing the apertures 12 in the feeder-tube in registry with the longitudinal side channels in the feeder, and ink will be supplied in sufficient quantity to the nib or point of the pen. When the pen is to be car- 90 ried or is not required for use, the nib-tube is again turned until the projections on the opposing cam-faces of the feeder-tube and nib-tube ride one upon the other, as shown in Fig. 2, and at that time the pin 23 at the 95 inner end of the feeder will be upon the lower inner end surface of the feeder-tube, admitting of the above-named separation; and in turning the nib-tube and feeder to accomplish this result the longitudinal ink-channels of 100 the feeder will be carried out of registry with the supply-openings 12 in the feeder-tube, and suction will have been established at the outer end of the feeder to such an extent as to draw the surplus amount of ink into the 105 storage-cells between the teeth 26^a and, if necessary, also in the auxiliary cells 28.

In Figs. 15, 16, and 17 I have illustrated a slightly-modified form of feeder in which the top portion of the feeder is angular or sub- 110 stantially inverted-V shape and the bottom portion is cylindrical or semicircular, the piston-section 21^a being the same as that described in connection with the other form of feeder, and the angular formation at the top 115 of this modified form of feeder is not only in the body portion 20^a, but is likewise continued to the tip 19^a, and various transverse channels 29 are made in the aforesaid angular sur- 120 face to form storage chambers or cells for the ink withdrawn from the nib, and the longitudinal ink-supply channels 24^a are shown as having an upward inclination, communicating directly with the upper serrated surface of the tip; but the channels 24^a may run as 125 shown in Fig. 10, and the recess 26 may be added, if desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent— 130

1. In a fountain-pen, the combination with an ink-reservoir, and a feeder-tube carried by the reservoir and having its inner end extending into the ink-reservoir and provided

with supply-openings therein, of a nib or pen receiving section mounted to turn in the feeder-tube, and a feeder carried by and movable with the nib or pen receiving section, said feeder being provided with channels adapted to register with the supply-opening of the feeder-tube, substantially as described.

2. In a fountain-pen, the combination with an ink-reservoir and a feeder-tube carried by the reservoir and having supply-openings therein, of a nib-tube mounted to turn in the feeder-tube, a feeder carried by and movable with the nib-tube, said feeder being provided with longitudinal channels adapted to register with the supply-openings of the feeder-tube, and means for drawing the nib-tube and feeder-tube together when the channels of the feeder are in registry with the supply-openings of the feeder-tube, substantially as described.

3. In a fountain-pen, a feeder-tube arranged for attachment to an ink-reservoir and provided with supply-openings establishing communication from the exterior of the tube with the interior of the same, that portion of the tube in which the supply-openings are located being provided with a cam-surface, and a feeder held to turn in the feeder-tube, having ink-conducting channels extending from a point near the rear to the tip, the said channels in one position of the feeder being in registry with the supply-openings of the feeder-tube, the said feeder being likewise provided with projections, arranged for engagement with the cam-surface of the feeder-tube, as and for the purpose specified.

4. In a fountain-pen, a feeder-tube having cam-surfaces at both of its ends, a nib or pen tube held to turn in the feeder-tube and provided with a cam-surface adapted for engage-

ment with a similar surface on the feeder-tube, and a feeder located in the nib-tube and extending within the feeder-tube, turning therein, communication being established in one position of the feeder-tube between its channels and the supply-openings in the feeder-tube, the said feeder having projections near its inner end for engagement with the inner cam-surface of the feeder-tube, as and for the purpose specified.

5. A feeder for fountain-pens provided with a tip having ink cells or pockets and having a body portion provided with longitudinal supply-channels, storage-cells adjacent to its outer end and communicating with the supply-channels, and transverse channels connecting the storage-cells with the cells of the tip, substantially as described.

6. A feeder for fountain-pens, provided with a tip having ink cells or pockets on its upper face, and a body portion angular at its forward end and having storage-cells on its under surface at its outer end, transverse channels connecting the storage-cells with the cells of the tip, and longitudinal supply-channels communicating with the storage-cells.

7. A feeder for fountain-pens provided with a tip having cells on its upper surface and having a body portion provided with longitudinal supply-channels, storage-cells at the outer end and communicating with the supply-channels, transverse channels connecting the storage-cells with the cells of the tip, and air-vents leading to the storage-cells, substantially as described.

CARL J. RENZ.

Witnesses:

J. FRED. ACKER,
A. A. HOPKINS.