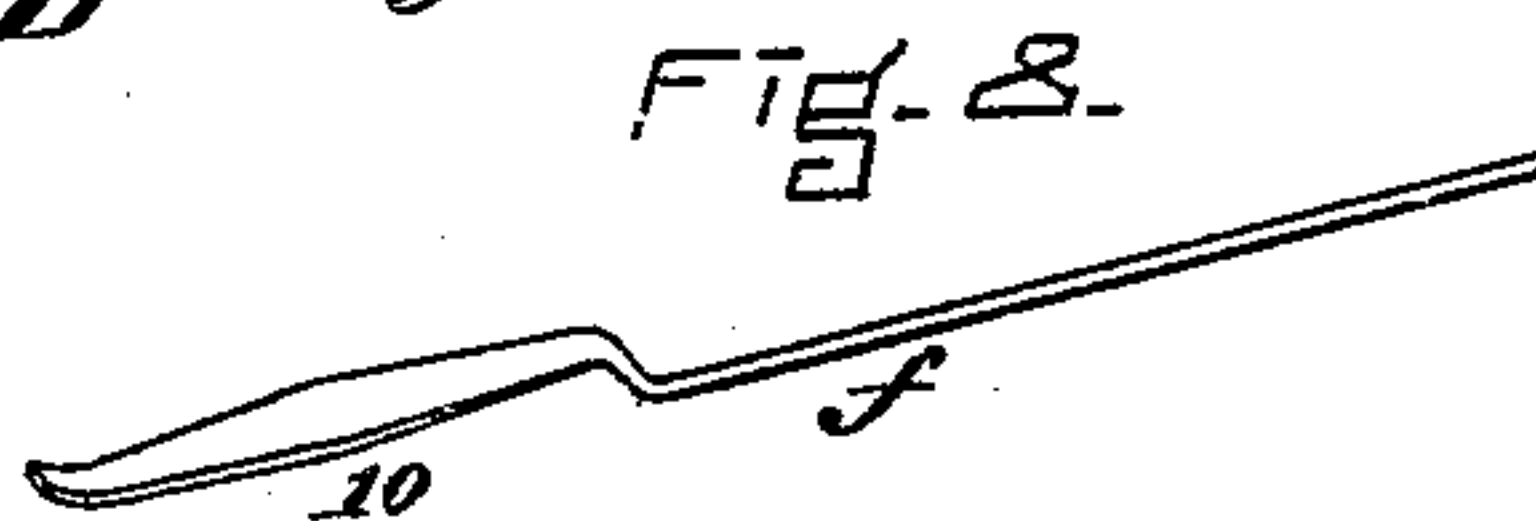
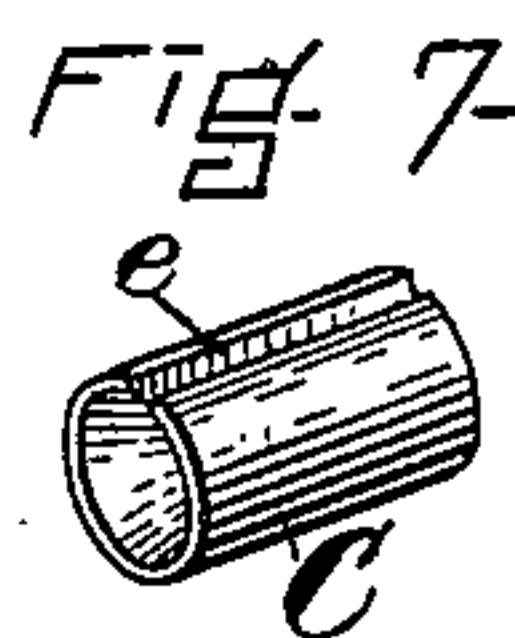
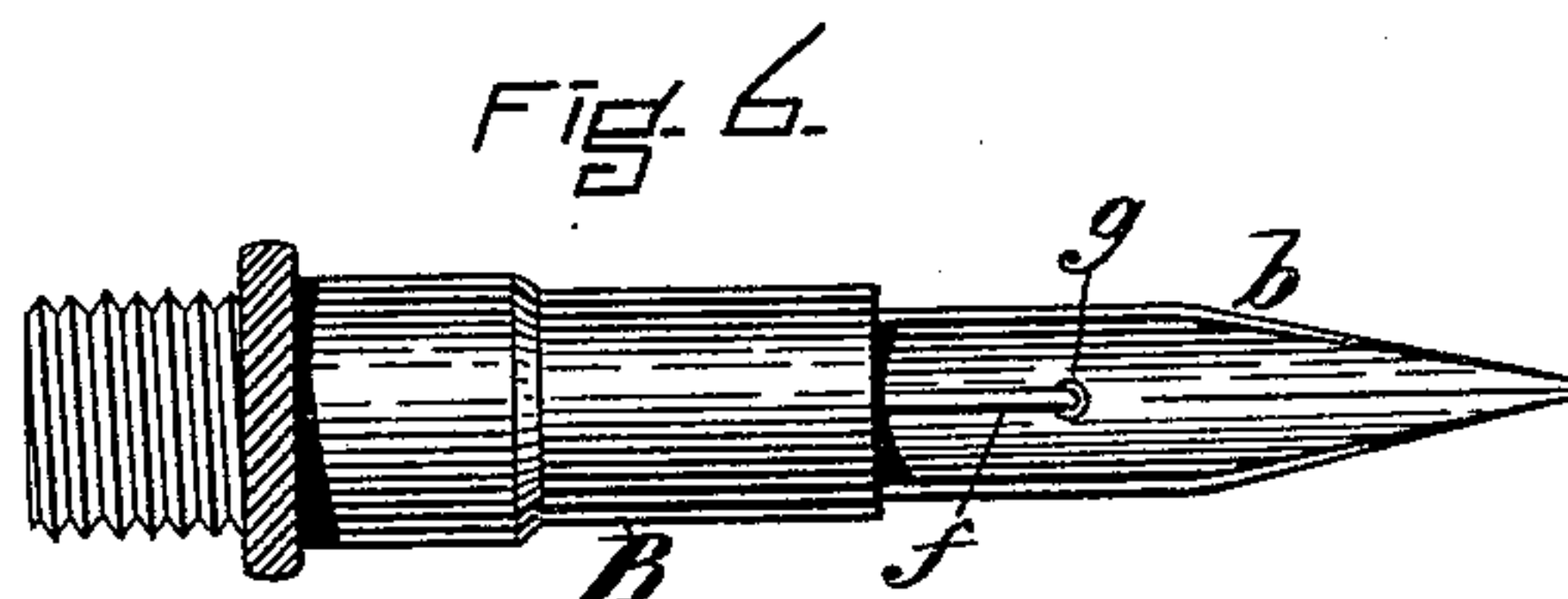
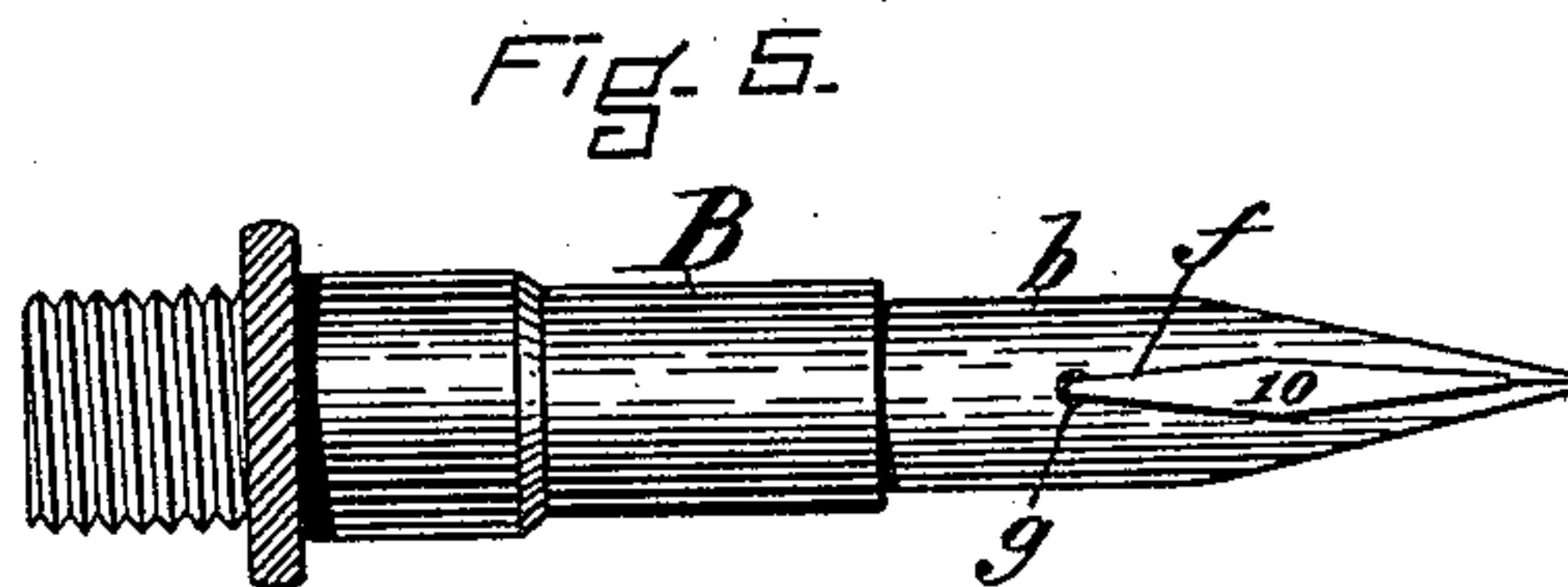
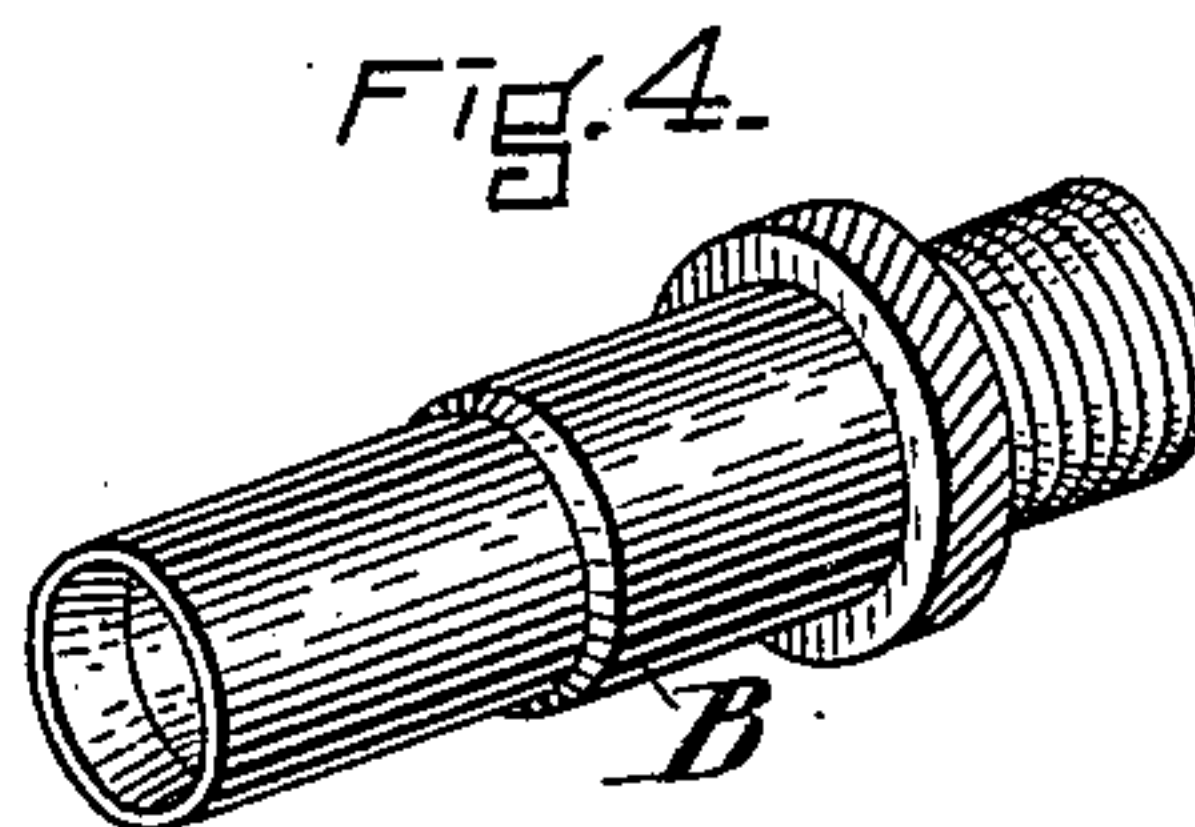
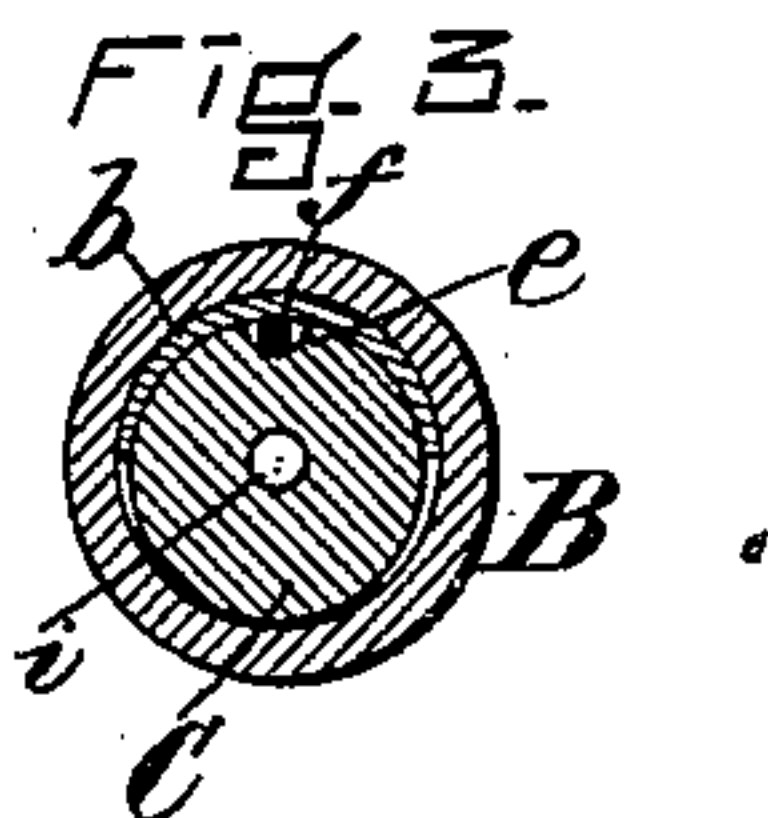
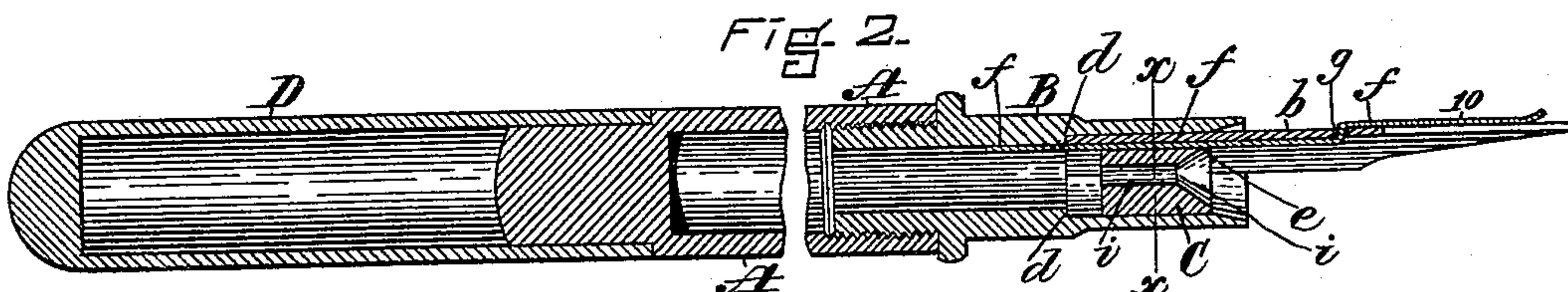
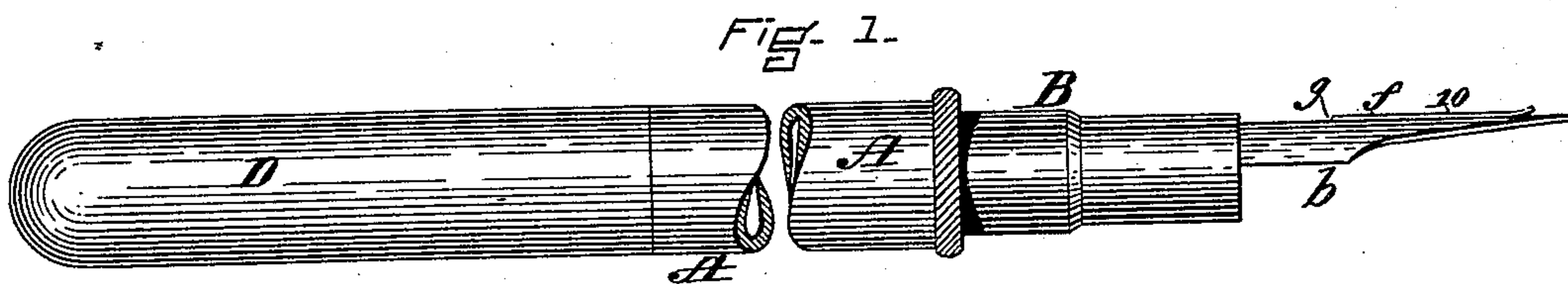


(No Model.)

E. MARBLE, Jr.  
FOUNTAIN PEN.

No. 426,833.

Patented Apr. 29, 1890.



WITNESSES.

Henry H. Hicken.  
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Atty.



# UNITED STATES PATENT OFFICE.

EZRA MARBLE, JR., OF BOSTON, MASSACHUSETTS.

## FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 426,833, dated April 29, 1890.

Application filed April 29, 1889. Serial No. 309,089. (No model.)

*To all whom it may concern:*

Be it known that I, EZRA MARBLE, Jr., a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Fountain-Pens, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a fountain-pen constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section through the center of the same. Fig. 3 is a cross-section of the same on the line  $x x$  of Fig. 2. Fig. 4 is a perspective view of the nozzle or pen section detached. Fig. 5 is a top view of the same with the pen and pen-holding plug in place therein. Fig. 6 is an underneath view of the same. Fig. 7 is a perspective view of the pen-holding plug. Fig. 8 is a view of the ink-feeding wire detached.

My invention has for its object to provide a fountain-pen of simple construction, having few parts, and in which the flow of the ink is so nicely controlled or regulated as to insure a certain and uniform supply to the pen, and at the same time effectually prevent overflowing or "dropping," or what is known as "skipping," resulting from an insufficient or irregular flow of the ink to the nibs of the pen while in use.

To this end my invention consists in the combination, with a tubular handle or ink-reservoir and a nozzle or pen-section carrying the pen, and a plug to hold the latter in place within said pen-section, of an ink-feeding wire lying within a longitudinal groove or channel formed in the pen-plug, said feed-wire projecting rearwardly beyond the pen-plug into a position to come into direct contact with the ink when the pen is in use and extending in the opposite direction beneath the under surface of the pen and up through an aperture therein formed at the inner end of the slit or slightly in the rear of the same, and thence along in contact or nearly in contact with the upper surface of the pen to or nearly to its point, by which construction a steady and uniform flow of the ink along the feed-wire to the point of the pen is insured

and the objections incident to the pens of this character hitherto in use entirely overcome, as hereinafter more particularly set forth; and my invention furthermore consists in certain combinations of parts and details of construction, as hereinafter fully set forth and specifically claimed.

In the said drawings, A represents the pen-handle, which is preferably composed of hard rubber or other suitable non-corrosive material, and is made hollow, as usual, to form a reservoir for containing the ink.

B is the nozzle or pen section, also formed of hard rubber, which is screwed into the open threaded end of the handle A and made tubular for the reception of the pen-holding plug C, which forms a seat and affords a firm support for the pen  $b$ , which is held in place within the nozzle by the friction of the inside of the latter and the upper side of the plug C, the latter holding the pen so firmly against the interior of the nozzle as to effectually prevent the ink from flowing along that portion of the upper surface of the pen which lies within the said nozzle. The heel of the pen rests against a shoulder  $d$  on the interior of the nozzle, as seen in Fig. 2, which makes a tight joint to exclude the ink, and also forms a gage for setting the pen, so that the latter will project the proper distance from the end of the nozzle.

The upper side of the plug C, which lies in contact with the under surface of the pen, is provided with a longitudinal groove  $e$ , which forms a duct or channel, through which the ink passes from the reservoir to the pen. Within this groove  $e$  is fitted the ink-feeding wire  $f$ , which projects rearwardly beyond the pen-plug C into the rear portion of the nozzle or pen section, so that it will be in direct contact with the ink when the pen is in the position which it occupies when in use, the ink following the wire  $f$ , which lies in contact with the under side of the pen, and being conducted thereby through the duct or channel  $e$  to and along that portion of the under side of the pen in front of the plug C, the wire being of somewhat smaller size than the channel  $e$ , so as to fit loosely therein and afford sufficient space for the passage of the ink therethrough. The feed-wire  $f$  extends along the under surface of the pen in front of the



plug C, and is then bent and passes up through an aperture *g*, formed in the pen at the inner end of the slit or slightly in the rear of the same, the wire *f* thence passing along in contact or nearly in contact with the upper surface of the pen to or nearly to its point, as seen in Figs. 1, 2, and 5. The aperture *g* is of somewhat larger diameter than that of the wire *f*, in order to afford a free passage for the ink from the under to the upper side of the pen. The portion 10 of the feed-wire *f*, which extends along the upper surface of the pen, is preferably flattened to such an extent as to render it very thin and flexible, thus forming an exceedingly light and pliable spring, which will yield freely to the movements of the nibs of the pen without stiffening the same or interfering in any manner with the free and natural action of the pen in the operation of writing, and by thus flattening this portion of the feed-wire a larger surface is afforded for holding the ink over the slit, whereby an adequate supply is insured, so that when an increased quantity is needed for shading or heavy lines the pen will respond immediately, as required.

Another advantage incident to the flattening of the feed-wire, as described, is that when the nibs of the pen are spread apart in the act of shading the wire cannot by any possibility drop between the same, which would prevent them from returning to their normal position, as might occur if a wire of small diameter was employed not having its outer portion flattened, as described.

The front end of the pen-holding plug C is preferably made concave or funnel-shaped and is provided with a central longitudinal passage *i*, forming a vent or air-duct, through which air is admitted to the ink-reservoir to prevent the formation of a vacuum and to allow the ink to flow freely through the ink-duct *e* to the nibs of the pen, as desired, the pressure of the air passing inward through this duct *i* forcing the ink back and effectually preventing it from entering the same. The air duct or channel, instead of passing through the center of the plug, as shown, may extend through any other suitable portion of the same to afford a proper supply of air to the ink-reservoir.

D is the ordinary cap, which is placed, as usual, on the rear end of the handle A when the pen is being used and over the nozzle B to inclose and protect the pen when the latter is not in use.

Although the ink is supplied freely and in sufficient quantity, nevertheless there is no accumulation at any time of ink on the pen outside or beyond the end of the nozzle B, for the reason that with this construction the pressure of air upon the body of ink inside the reservoir is sufficient to hold it in check and regulate or control its flow, thus avoiding the overflow or dropping so common in ordinary pens of this description. The groove *e* in the pen-plug C, through which the feed-

wire *f* passes, is only slightly larger than the diameter of the said wire, which enables the ink to be carried forward by capillary attraction in sufficient quantity to supply the pen under all conditions, but will not allow the ink to collect at any time on the pen in sufficient quantity to be beyond the control of the pressure of the air flowing inward through the air-duct *i*.

With my improved construction no ink whatever is fed to that portion of the upper surface of the pen in the rear of the aperture *g* therein, as the only manner in which the ink can reach the point of the pen is by following the feed-wire along the under surface of the pen, up through the aperture therein, and thence along the upper surface of the pen to the ends of the nibs, the wire forming a continuous conductor from the ink-reservoir to the point of the pen, and consequently the upper portion of the pen in the rear of the aperture *g* is entirely free from ink at all times like an ordinary dipping-pen, giving it a much more cleanly appearance than is the case where a feed-bar is employed extending along the upper surface of the pen from its rear end outward.

Hitherto most fountain-pens of this description have been provided with large deep ink ducts or channels or cumbersome feed-bars which feed the ink to the pen, which construction is objectionable, as it is impossible to successfully control the flow of the ink by air-pressure in pens so constructed, whereas by the construction and arrangement of parts which I have adopted, as above described, these defects are successfully remedied and a more perfect and reliable pen produced than has hitherto been in use.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a fountain-pen, the combination of a tubular handle or ink-reservoir, a nozzle or pen section carrying the pen, the latter provided with an aperture at the end of its slit, a pen-holding plug adapted to hold the pen in place within the pen-section and provided with an air-duct through which air is admitted to the ink-reservoir, and an ink duct or channel extending along its upper side next to the pen, an ink-feeding wire lying within the groove or ink-duct of the pen-holding plug and projecting rearwardly beyond the inner end of the same and serving to conduct the ink through said ink-duct in contact with the under surface of the pen, said feed-wire extending in the opposite direction along the under surface of the pen and up through the said aperture therein, and thence along the upper surface of the pen to or nearly to its point, whereby a continuous conductor is formed for the ink from the reservoir to the point of the pen, substantially as set forth.

2. In a fountain-pen, the combination of the tubular nozzle or pen section B, the pen *b*, fitted therein against a shoulder *d* and provided with an aperture *g* at or near the inner end



of its slit, the pen-holding plug C, fitted within  
the nozzle and adapted to hold the pen snugly  
against its upper interior surface with its heel  
against the shoulder *d*, said plug having an  
5 air-duct *i* and an ink duct or channel *e*, ex-  
tending along its upper side next to the pen,  
and the ink-feeding wire *f*, lying within the  
ink-duct *e* and projecting rearwardly beyond  
the inner end of the same, and in the opposite  
10 direction along the under surface of the pen,  
up through the aperture *g* therein, and thence  
along the upper surface of the pen to or nearly

to its point, and having the portion which lies  
along the upper surface of the pen flattened  
to form a light flexible spring, all constructed 15  
to operate substantially in the manner and  
for the purpose set forth.

Witness my hand this 25th day of April,  
A. D. 1889.

EZRA MARBLE, JR.

In presence of—

P. E. TESCHEMACHER,  
HARRY W. AIKEN.