No. 825,442. PATENTED JULY 10, 1906.

F. W. BENDER.

FOUNTAIN PEN.

APPLICATION FILED FEB. 26, 1906.

Fig. 1.

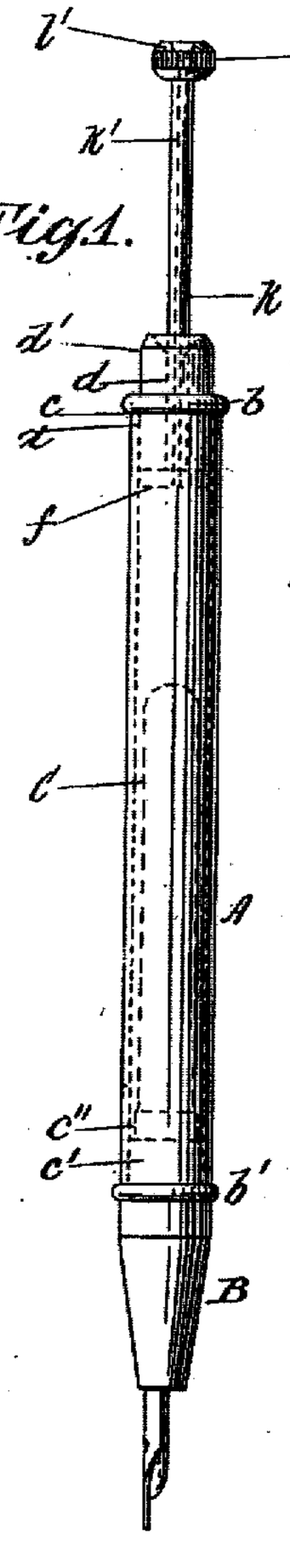


Fig. 2.

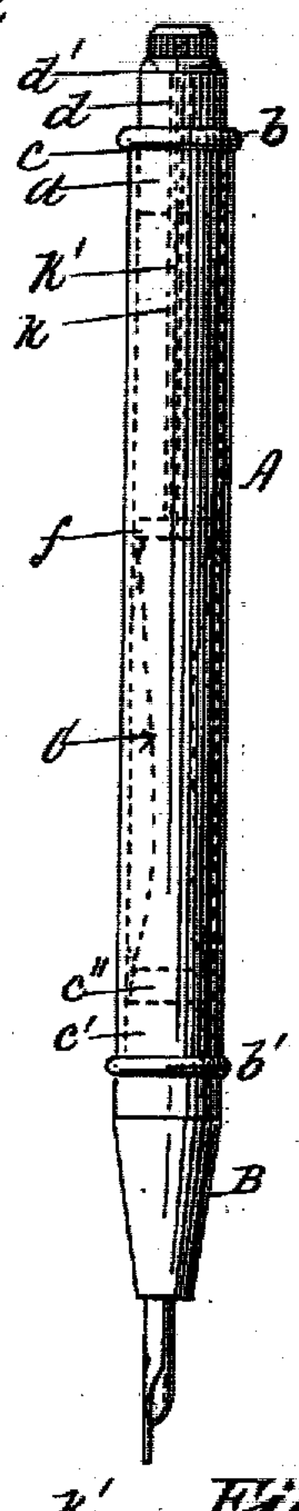


Fig. 8.

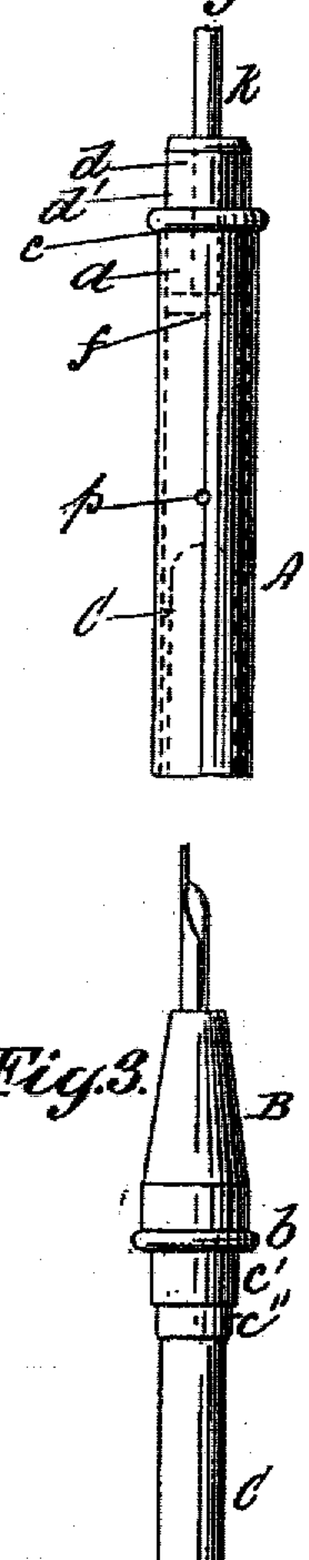


Fig. 4.

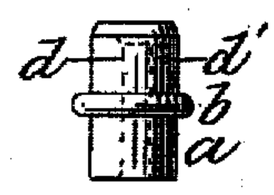


Fig. 5.

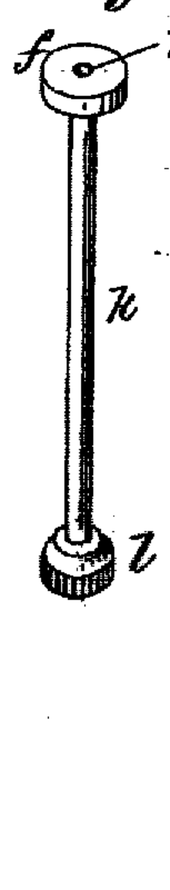


Fig. 3.

Fig. 6.

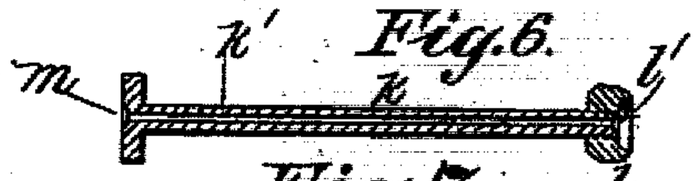
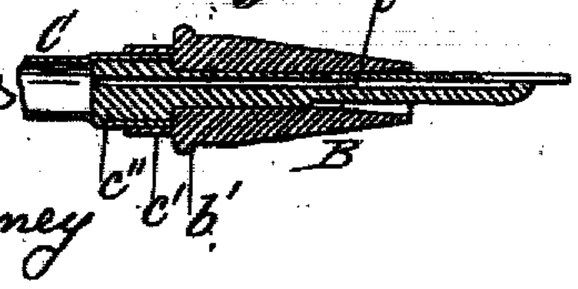


Fig. 7.



Witnesses:

Arthur J. Westaway

Howard S. Kinney

Inventor:

Frederick William Bender

UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM BENDER, OF HOBOKEN, NEW JERSEY.

FOUNTAIN-PEN.

No. 825,442. Specification of Letters Patent. Patented July 10, 1906.

Application filed February 26, 1906. Serial No. 302,841.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM BENDER, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Fountain-Pens, of which the following is a specification.

The object of my invention is to provide a device by means of which fountain-pens may be filled by means of suction. I accomplish this by two devices, but each of which involves the same principles, as will more particularly hereinafter appear.

My invention relates to a reservoir for holding a tube made of rubber or other suitable material, the upper end of the reservoir being furnished with a cap through an opening in which a cored rod is inserted, attached to the lower end of which is an apertured plunger corresponding in shape with the interior of the reservoir, and which cored piston-rod slides up and down through a corresponding core in the cap, and the upper end of the piston-rod is equipped with a knob also supplied with a corresponding core.

My invention also relates to a flexible tube, of rubber or other suitable material, inserted into the lower end of the reservoir, the tube being slipped over a collar at the end of the cored feed to which the pen is attached. The core in the piston-rod, plunger, and cap may be eliminated and an aperture in the reservoir substituted, and by opening and closing the same in like manner and for the like purpose as the core in piston-rod, plunger, and knob attain the same result, but reduce cost of manufacture. This form of construction involves the same principle; but instead of a cored piston-rod with apertured plunger attached I construct the piston-rod and plunger in solid form and admit or exclude the air for the purpose of bringing about the suction for filling the tube in the reservoir by covering or uncovering the aperture in the reservoir as is required for that purpose.

Preliminary to feeding the tube in the reservoir the aperture is closed with the thumb or convenient finger, and the piston-rod is then pushed downward as far as the knob on the upper end of the piston-rod will allow. The plunger will cause the air in the reservoir to contract, in doing which it will also contract the flexible tube, while when the thumb or finger is removed from the aperture the air is allowed to escape from the tube, thus causing the flexible tube in the reservoir to resume its normal shape, thereby bringing about the suction and causing the ink or other liquid to pass into the tube ready for use and in like manner and with similar parts, as hereinafter more fully set forth in the other construction of my filling device. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the fountain-pen with the piston-rod withdrawn preliminary to filling with all the several parts assembled. Fig. 2 is a side view of the fountain-pen with the piston-rod pushed down and the tube contracted preliminary to filling with all the several parts assembled. Fig. 3 is a view of the flexible tube attached to the cored feed with pen in place. Fig. 4 is a cross-section showing the cored cap to be inserted into the upper end of the reservoir. Fig. 5 is the piston-rod and plunger attached. Fig. 6 is a cross-section showing cored piston-rod and apertured plunger. Fig. 7 is a cross-section of the cored feed with pen attached. Fig. 8 is a cross-section showing solid piston-rod and plunger with aperture in reservoir.

The reservoir A is closed air-tight at the upper end by inserting the projection *a* into the reservoir until the under surface of the collar *b* is flush with the upper end *c* of the reservoir. The piston-rod *k* is inserted into and through the bore *d* to move freely up and down. Attached to the piston-rod is the plunger *f*, and to the upper end of the piston-rod is fastened the knob *l*, with a corresponding core *l'*. The piston-rod is furnished with a core *k'*, corresponding with core *l'*, and aperture *m*. The aperture *m* is an opening in the plunger *f*, which corresponds with the core *k'* At the lower end of reservoir A is inserted the feed B, so that the lower end of the reservoir A is flush with the collar *b'*, thus closing the reservoir air-tight. The tube C, however, is first slipped over the projection *c''*.

c' is a sleeve integral with nozzle B and surrounding the forward end of the tube *c*, said sleeve forming a seat for the reservoir A. The feed B is provided with a core *o*, through which the ink flows from the tube C into the pen attached to the feed B.

To fill the pen, the following procedure is required, viz: The piston-rod *k* is drawn upwardly and outwardly until the plunger *f* is flush with the lower end of the projection *a*, as shown in Fig. 1. The core *l'* is then closed

with the finger, thus shutting off the air from without. The knob *l* is then pressed downward until it arrives at the collar *d'*, by which process the plunger *f* has compressed the air in reservoir A and contracted the tube C. The finger being removed from the core *l'*, the compressed air in the reservoir A is released through the core *k'*, first passing through the aperture *m* and out at the core *l'*, allowing the tube C to resume normal shape, in doing which the ink or other fluid is sucked up through the core *o* into the tube C, where it remains ready for use.

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

1. In a fountain-pen, a reservoir, a pen-section, carried at the forward end of said reservoir, an elastic tube, shorter than said reservoir and closed at the rear end, mounted on said pen-section, and lying within said reservoir, a piston mounted in said reservoir at the rear of said tube, an operating-rod carried by the said piston, passing through the rear end of said reservoir, and means for admitting the air between said tube and piston at any position of the piston.

2. In a fountain-pen, a reservoir, a pen-section carried at the forward end of said reservoir, an elastic tube shorter than said reservoir, and closed at the rear end, mounted on said pen-section, and lying within said reservoir, a piston mounted in said reservoir at the rear end of said tube, and an operating-rod, carried by said piston, passing through the rear end of said reservoir, said stem and piston having a hollow core for admitting air.

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

FREDERICK WILLIAM BENDER.

Witnesses:
ARTHUR J. WESTERMAYR,
HOWARD S. KINNEY.