No. 827,022. PATENTED JULY 24, 1906.

D. B. KAUFMANN.

FOUNTAIN PEN.

APPLICATION FILED JULY 22, 1905.

Fig. 1

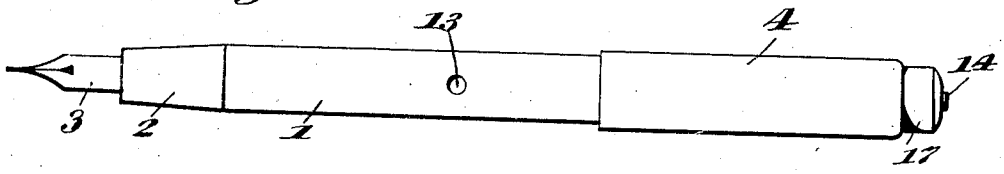


Fig. 2

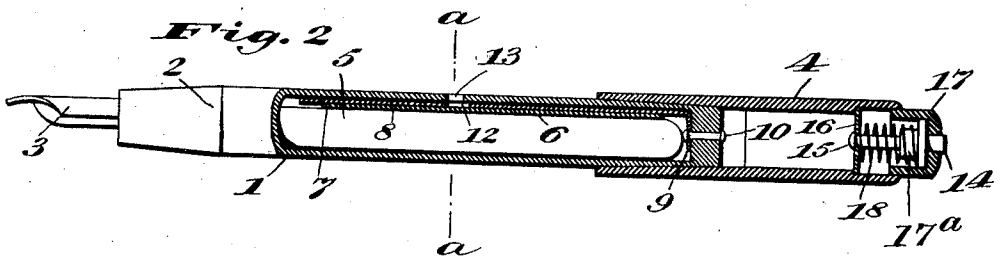


Fig. 3

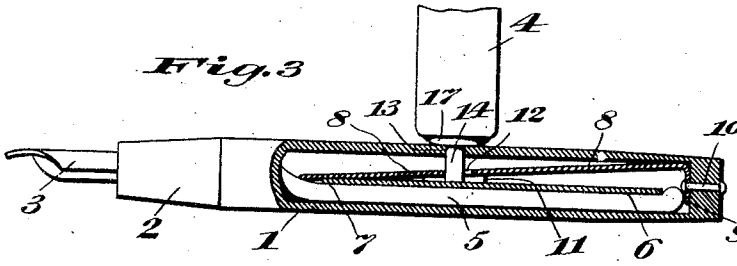


Fig. 4

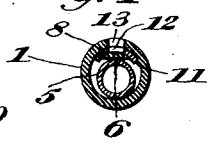


Fig. 5

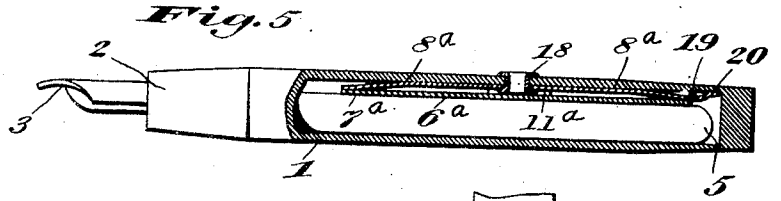


Fig. 6

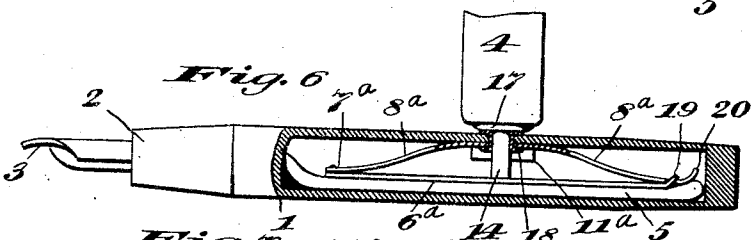
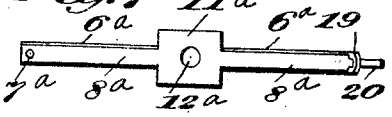


Fig. 7



Witnesses

James Gorss.

William Schuchardt

Inventor

David B. Kaufmann,

By by John Elias Jones

Attorney.

UNITED STATES PATENT OFFICE.

DAVID B. KAUFMANN, OF CINCINNATI, OHIO.

FOUNTAIN-PEN.

No. 827,022. Specification of Letters Patent. Patented July 24, 1906.

Application filed July 22, 1905. Serial No. 270,822.

To all whom it may concern:

Be it known that I, DAVID B. KAUFMANN, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to certain improvements in fountain-pens, and particularly in that class of such devices which are provided with filling devices inclosed within the pen-barrel and by means of which the pen may be quickly and conveniently filled with ink from a suitable well or reservoir; and the object of the present invention is to provide a pen of this general type having filling means of an improved and simplified nature and of a compact and durable structure not liable to become deranged or broken during use and by the employment of which the filling of the pen with ink may be more quickly and conveniently effected.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved fountain-pen, whereby certain important advantages are attained and the device is rendered simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a side elevation of the pen embodying my improvements; and Fig. 2 is a central or axial section, partly in elevation. Fig. 3 is a view similar to Fig. 2, but illustrating the operation of the inclosed filling means when employed for filling the pen. Fig. 4 is a section taken transversely through the pen-barrel in the plane indicated by line *a a* in Fig. 2. Fig 5 is a sectional view similar to Fig. 2, but illustrating a modified form of the improved filling means; and Fig. 6 is a sectional view similar to Fig. 5, but illustrating the operation of the modified formation of the filling means for use in filling the pen. Fig. 7 is a detail view showing the formation of the press-plate employed in the modified structure illustrated in Figs. 5 and 6.

As shown in the views, 1 indicates the barrel or body portion of the pen, this part having a longitudinal hollow or bore formed in it and having at one end an opening adapted to receive the pen-section 2, which is usually provided with a screw-threaded connection for said barrel and carries the pen-point 3 in any preferred way.

4 indicates a cap or protective cover of cylindrical form, which is adapted to be slipped on or off either end of the barrel 1, serving when slipped over the pen-section to house and inclose the pen-point, and adapted to form an extension of the barrel when slipped over the opposite end thereof.

5 is a compressible ink reservoir or holder, which is made in the form of an elongated tube of soft rubber with one end connected to the pen-section for the supply of ink to the pen-point in writing, its opposite end being closed, as shown in the drawings. The diameter of said tubular reservoir 5 is such that when the parts are assembled said reservoir will be contained within the hollow or bore of the body portion or barrel.

6 indicates a press-plate which is extended lengthwise within the hollow or bore of the barrel 1 in close proximity to one wall thereof, so as to be adapted for unattached contact along substantially the entire length of the compressible ink-reservoir 5 at one side thereof, and one end portion 7 of said press-plate 6, as seen in Figs. 2 and 3, is connected or attached in any preferred way, as by riveting, soldering, or the like, to one end of a retracting device 8, which is, as seen in said figures, made in the form of an elongated strip or piece of spring metal having at the closed end of the barrel opposite to the pen-section an angular bent portion or extremity 9, which is held by a rivet 10 or otherwise to the closed extremity of the barrel.

The resilience of the metal from which the part 8 is formed is such that said part is normally maintained in close contact along one side wall of the barrel 1, and by reason of the connection of the free end of said resilient strip 8 with the press-plate 6 it is evident that said press-plate 6 will also be normally maintained in close proximity to said side wall of the barrel, so as to exert practically no pressure upon the wall of the compressible ink-reservoir 5, whereby when said reservoir is filled with ink the ink will be retained therein and only fed therefrom to meet the requirements of writing. It will also be seen that since the press-plate and its attached spring-retracting device are maintained closely upon the side wall of the pen-barrel

detached from the reservoir 5 said parts will present no obstacle to the ready removal and application of said reservoir 5 from and to the barrel.

At a point adjacent to the center of the press-plate the spring-strip 8 has a laterally-widened portion 11, the opposite parts of which are bent or curved to conform to the curvature of the inner wall of the barrel, so that said part 11 may fit closely adjacent upon said wall of the barrel, and in said portion 11 is produced an opening 12, which is elongated in the direction of the length of the barrel and is adapted to correspond and register with a small circular opening or perforation 13, produced in the side wall of the pen-barrel.

14 indicates a pin or projection produced upon and extended from the closed end of the cap or cover 4, the preferred construction and arrangement of this part being shown in Fig. 2. As shown in said view, said pin 14 has a reduced inner end 15, which is securely held to the central part of a metal disk 16, the edges of which are seated upon a shoulder produced around the walls of the cap or cover 4. The disk 16 is seated in the end of the cap 4 at some little distance from the extremity thereof, so that a chamber is left beyond said disk at the extremity of said cap or cover, and within said chamber is held for movement in the direction of the length of the pin 14 a hollow plug 17, serving to close the open rear end of the cap or cover 4. The plug 17 is centrally perforated for the passage of the pin 14, and said plug is also provided with a metallic body 17^a, through which said pin 14 is also passed and which is provided with a shoulder for engagement upon the stop produced by the outer end of the reduced part of the pin 14 to limit the outward movement of said plug, so that the same may not be altogether detached from the cap or cover. A spring 18, coiled on the reduced end of the pin 14 within the chamber beyond disk 16, serves to hold said plug normally pressed outward beyond the rear end of the cap or cover, as seen in Figs. 1 and 2, by which means substantially the entire length of the pin 14 is housed in said plug and is thereby prevented from being broken off or bent.

Preferably a very short portion of pin 14 normally protrudes beyond the end of plug 17, and said pin being of a diameter to readily enter the perforation 13 in the barrel 1 it is evident that whenever desired said protruding end of pin 14 may be engaged in said perforation, and pressure being exerted upon the cap the spring 18 will be compressed to permit the plug 17 to enter its chamber in the cap, while the pin 14 will be further protruded beyond said plug, as seen in Fig. 3, so as to pass into the hollow or bore of the barrel and through the elongated opening 12 in the retracting-spring 8 into contact with the press-plate 6, which is thereby pressed forcibly upon one side of the compressible ink-reservoir 5, whereby the air within the said reservoir will be expelled, the spring 8 being at the same time flexed, as shown in Fig. 3, to permit the required movement of the press-plate 6.

By this construction it will be evident that when the pen-point and feeder at the pen-section 2 is dipped in the ink within a well or other receptacle the pin 14 on cap 4 may be pressed through opening 13 in such a way as to move the press-plate 6 against the side of the compressible ink-reservoir, so as to cause the air therein contained to be expelled, and when said pin 14 is withdrawn from said opening 13 the spring 8 will act to retract the press-plate 6 to its normal position close against the side of the barrel, whereupon the walls of the ink-reservoir 5 are permitted to exercise their resilience to expand said reservoir to its normal tubular form, so that a supply of ink will be drawn within said reservoir through the opening of the pen-section and the feeder connected therewith.

By this construction of the device it will be obvious that the pen may be readily filled whenever required, and when the pin 14 of the cap has been withdrawn from the opening 13 in the barrel after use in filling the pen it will be evident that the spring 18 will at once act to press the plug 17 outwardly in the chamber at the end of cap 4, so as to inclose and protect substantially the entire length of the pin 14.

From the above description of my improvements it will be evident that the fountain-pen and its filling means constructed according to my invention are of an extremely simple and inexpensive nature and are especially well adapted for use by reason of the rapidity and convenience with which the pen may be filled with ink and also by reason of the fact that the filling means comprising the press-plate 6 and pin 14 are both substantially inclosed and housed when not required for use, so as not to interfere in any way with the free use of the pen in writing. It will also be obvious from the above description that the device is capable of considerable modification without material departure from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device as herein set forth in carrying out my invention in practice. For example, in certain cases the structure shown in Figs. 5, 6, and 7 may be employed. As shown in these views, the press-plate 6^a has one end connected by riveting, as shown at 7^a, with one end of the retracting-spring 8^a, the opposite end of which has a reduced part or tongue 20, which is passed through an opening in an upset part

19 of said press-plate at the opposite end thereof. The form of the spring and its connection with the press-plate are both shown in detail in Fig. 7, the central wider part 11^a of said spring being curved, as above described, to conform with the curvature of the wall of the barrel 1 and having a central opening 12^a, corresponding or registering with an opening in the barrel 1 for the passage of the pin 14 on cap 4 into contact with the press-plate. An eyelet 18 is passed through the openings in the spring and barrel with flanges at opposite sides of said parts for holding the parts in relation, the spring being thus held to the barrel at its central part instead of at one end, as in the structure shown in Figs. 2 and 3 above described. The diameter of the opening in the eyelet is also sufficient for the passage of pin 14 on cap 4, and the operation of the device in filling the reservoir with ink is substantially similar to that above described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A fountain-pen comprising a hollow barrel having a minute reservoir-opening in its side for the passage of a pin or the like, a compressible, tubular ink-reservoir removably inserted within the barrel, a press-plate unattached to said ink-reservoir and extended lengthwise in the barrel with an intermediate part in line with the said minute opening therein and adapted to be engaged by a pin inserted thereat and a strip of elastic metal one end of which has attached connection with the press-plate and the opposite end of which has attached connection with the barrel, said strip being between the barrel and press-plate and being provided with a central opening registering with that in the barrel and being adapted to hold the press-plate normally retracted in close proximity to the wall of the barrel.

2. A fountain-pen comprising a hollow barrel having minute reservoir-opening in its side for the passage of a pin or the like, a compressible, tubular ink-reservoir removably inserted in the barrel, a press-plate unattached to said ink-reservoir and extended lengthwise in the barrel with an intermediate part in alinement with the opening in the barrel and adapted to be engaged by a pin inserted thereat and a strip of elastic metal extended lengthwise between the barrel and press-plate with a bent end connected with one end of the barrel and having a central opening registering with that in the side of the barrel for the passage of a pin into contact with the press-plate, the opposite end of said strip being rigidly connected with the adjacent end of said press-plate to hold the same normally retracted in close proximity to the side of the barrel.

3. A fountain-pen comprising a hollow barrel having a minute circular opening in its side, a compressible, tubular ink-reservoir removably inserted in the barrel, a press-plate arranged adjacent, but unattached to said reservoir, and extended lengthwise in the barrel with an intermediate part in line with said minute circular opening therein, an elastic-metal strip arranged within the barrel and suitably connected thereto at one end adjacent to and carrying, at the other end, the said press-plate and provided with a minute opening registering with said minute opening in the side of the barrel, a cap removably held on said barrel and provided with a projecting pin for insertion in said minute circular opening in the barrel and having a chamber surrounding said pin, a plug movable in said chamber and through which said pin is passed and a spring arranged in the chamber beneath said plug and adapted to press the same in a direction to house and cover said pin.

Signed at Cincinnati, Ohio, this 20th day of July, 1905.

DAVID B. KAUFMANN.

Witnesses:
JOHN ELIAS JONES,
JAMES GROSS.