No. 894,667. PATENTED JULY 28, 1908.

# C. W. KNAPP.

## FOUNTAIN PEN.

APPLICATION FILED SEPT. 13, 1907.

Fig. 1.

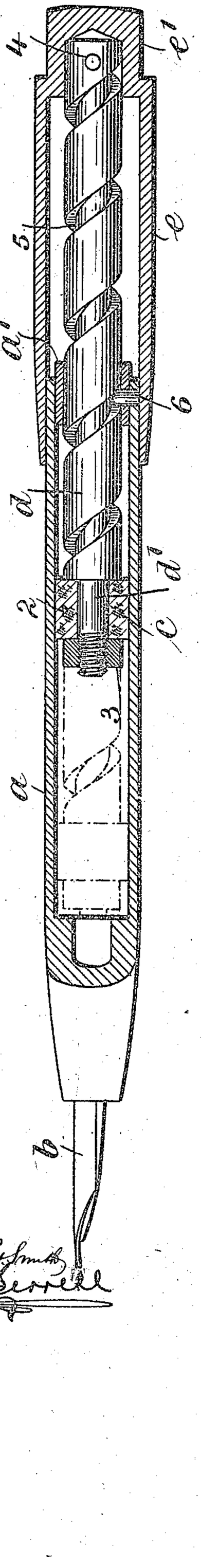



Fig. 2.

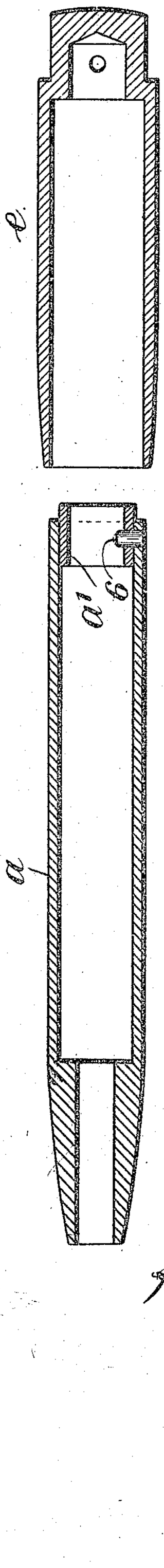



Fig. 3.

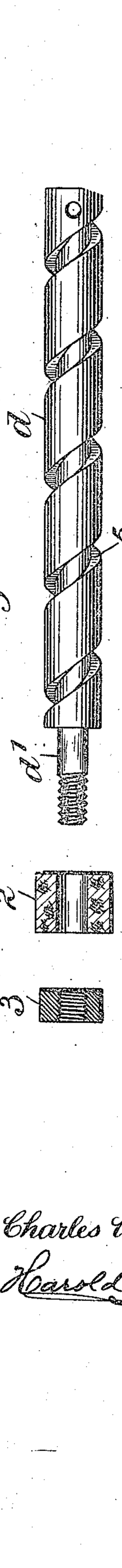
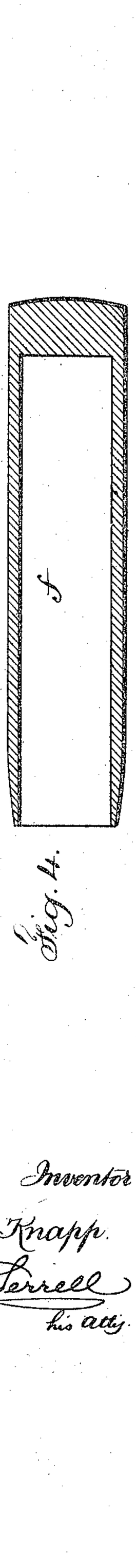



Fig. 4.




Witnesses
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# UNITED STATES PATENT OFFICE.

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## FOUNTAIN-PEN.

No. 894,667. Specification of Letters Patent. Patented July 28, 1908.

Application filed September 13, 1907. Serial No. 392,607.

*To all whom it may concern:*

Be it known that I, CHARLES W. KNAPP, a citizen of the United States, residing at the borough of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Fountain-Pens, of which the following is a specification.

My invention relates to an improvement in fountain pens of the class adapted to be filled without separation and the use of the usual filling device for placing the ink therein, and the object of my invention is to simplify the construction by lessening the number of parts and to increase the efficiency and to reduce the possibility of leakage to a minimum.

In carrying out my invention, the ink is drawn into the barrel or reservoir part of the handle at the pen end and past the pen by the longitudinal movement of a member within the barrel which in turn is rotated to produce this longitudinal movement by a revoluble member to which it is secured.

The device of my improvement comprises the barrel or cylindrical reservoir for the ink, a piston movable along within the same, a spirally grooved piston-rod connected at one end to the piston and movable through one end of the barrel or cylinder and in which end is a pin taking into said groove so as to impart rotation thereto with the longitudinal movement, and I employ an external tubular member to which the outer end of the said piston-rod is secured and by which the necessary force is employed to move the piston and rod longitudinally.

The ink is drawn in at the pen end of the barrel or cylinder by the longitudinal movement of the piston between its extremes of movement, thus creating a vacuum into which the ink flows to fill the barrel and the piston is so made that no ink passes by the same in use. The pen may be cleansed by the longitudinal movement of the piston drawing in and forcing out the cleansing water.

In the drawing, Figure 1 is a longitudinal section in large size showing the details of my improvement. Fig. 2 is a longitudinal section of the barrel or ink holding cylinder and the tubular end, Fig. 3, is an elevation and longitudinal section of the spirally grooved piston-rod and the parts connected therewith and forming the piston, and Fig. 4 is a longitudinal section of the sleeve normally employed upon the pen end of the fountain pen to cover and protect the pen.

*a* represents the barrel or ink holding cylinder tapered at the left hand end as shown in the drawing and perforated to receive a pen *b* and the devices for holding the same, which devices form no essential part of my present invention. The opposite end of the barrel *a* is open-ended and is fitted with a sleeve $a^1$ through which sleeve and the barrel extends a pin 6 having a rounded end adapted to fit in the spiral groove 5 of the piston-rod *d*. The piston *c* is composed of a cork member 2 snugly fitting within the barrel *a* upon the reduced end $d^1$ of the piston-rod. This reduced end $d^1$ is threaded to receive the nut 3 which clamps the cork sleeve member against the end of the piston-rod and holds the same snugly in place. The piston-rod *d* fits snugly within the sleeve $a^1$ so that there is no looseness and as the cork filling or sleeve 2 fits snugly within the barrel *a* no ink can pass between the same and the barrel to the rear of the said piston.

*e* represents a tubular revoluble end adapted to fit over the barrel *a* and the same is shouldered at its extreme end and adapted to receive the sleeve *f*. This reduced shouldered end $e^1$ of the tubular portion *e* agrees in diameter with the barrel *a* so that the sleeve *f* is adapted to fit either upon the end $e^1$ when the pen is in use, or to cover the pen *b* and be held to the barrel *a* when the fountain pen is not in use and it is desired to protect the pen.

The end of the spirally grooved piston-rod *d* is received in an aperture formed within the end of the tubular member *e* and a pin 4 is employed to fasten this tubular member to the piston-rod.

In the operation of the device, Fig. 1 shows by dotted lines the piston at its nearest approach to the pen *b*. In this position the pen end of the fountain pen is to be dipped into the supply of ink. The tubular member *e* and spirally grooved piston-rod *d* are then rotated and simultaneously the piston *c* is moved lengthwise of the barrel or ink holding cylinder *a* as far as the construction of the parts will permit of the movement. This act produces a vacuum within the barrel which with the longitudinal movement of the piston the ink flows in to fill, so that when the piston reaches its extreme movement to the right

hand of the barrel as shown, the same is filled with ink.

In writing with the fountain pen, the ink flows out and its place is taken by the entrance of air, and when the supply of ink is exhausted the revoluble member *e* of the piston-rod and piston are turned so as to bring the piston again near to the pen so as to repeat the operation and draw in a fresh supply of ink.

In the use of this instrument as with other fountain pens, the user is presumed to keep the pen upright in the pocket or on the desk so that the ink will not flow out accidentally by gravity or capillary action, and when not in use the pen is supposed to be covered by the sleeve *f* which is transferred from the pen end to the reduced shouldered end $e^1$ of the tubular member *e*.

In view of the fact that the piston fills the cylinder or barrel *a*, no ink can pass by the same as this cork piston acts the same as the cork in a bottle to retain the ink in position,—consequently the ink will not escape through the sleeve $a^1$ of the barrel along the spiral groove of the piston-rod where it can injure clothing or soil the fingers, or be otherwise detrimental.

I claim as my invention:

1. A fountain pen comprising an ink-holding cylinder having a smooth interior and with a pen in one end, a piston fitting the said cylinder and means manually actuated for imparting to the piston both a longitudinal and rotary movement for drawing in the ink at the pen end of the said cylinder.

2. In a fountain pen, the combination with an ink holding cylinder and a pen connected therewith at one end, of a sleeve in the opposite end of said cylinder and a pin passing through said sleeve and cylinder and projecting within the same, a piston fitting the said cylinder, a piston-rod connected therewith and provided with a spiral groove into which the aforesaid pin extends, a tubular member receiving the free end of the piston-rod and means for connecting said parts, whereby with the rotation of the tubular member the piston and piston-rod are rotated and moved longitudinally.

3. In a fountain pen the combination with an ink holding cylinder and a pen connected therewith at one end, of a sleeve in the opposite end of said cylinder and a pin passing through said sleeve and cylinder and projecting within the same, a piston comprising a close fitting sleeve of cork fitting the said cylinder, a piston-rod connected therewith and provided with a spiral groove into which the aforesaid pin extends, a tubular member receiving the free end of the piston-rod and means for connecting said parts, whereby with the rotation of the tubular member the piston and piston-rod are rotated and moved longitudinally.

4. A fountain pen comprising an ink-holding cylinder having a smooth interior and tapered at one end and a pen fitting the said end, a piston within said cylinder, a piston-rod secured to the piston, a tubular member to which the opposite end of the piston-rod is connected and by which a rotary movement is imparted to the piston and piston-rod and means by which a longitudinal movement is simultaneously imparted to the piston and piston-rod to draw in the ink at the pen end of the said cylinder.

Signed by me this 6th day of September 1907.

CHARLES W. KNAPP.

Witnesses:
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