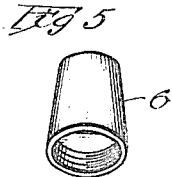
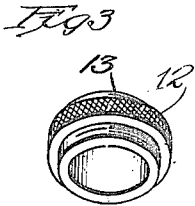
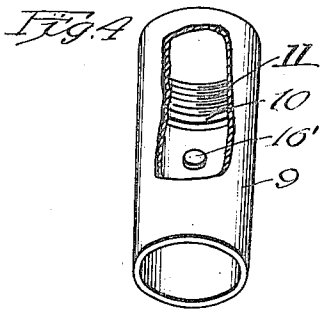
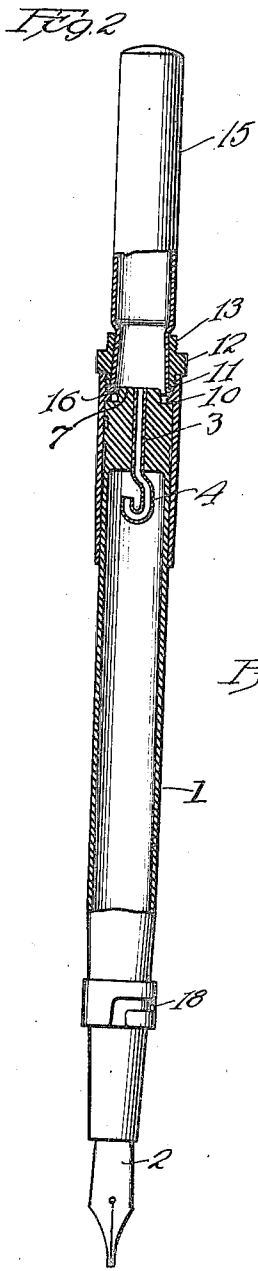
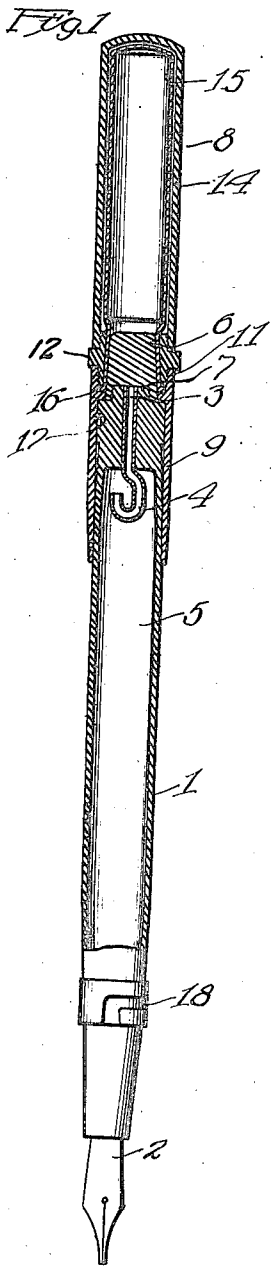


APPLICATION FILED FEB. 25, 1916.

1,239,971.

Patented Sept. 11, 1917.



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UNITED STATES PATENT OFFICE.

WILLIAM J. RUFF, OF QUINCY, ILLINOIS.

FOUNTAIN-PEN.

1,239,971.

Specification of Letters Patent. Patented Sept. 11, 1917.

Application filed February 25, 1916. Serial No. 80,350.

To all whom it may concern:

Be it known that I, WILLIAM J. RUFF, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to filling mechanism for fountain pens and has for its object the provision of an improved device for that purpose. The invention is exemplified in the combination and arrangement of parts shown in the accompanying drawings and described in the following specification, and it is more particularly pointed out in the appended claims.

In the drawings—Figure 1 is a longitudinal sectional view of a fountain pen equipped with the preferred form of my invention; Fig. 2 is a view similar to Fig. 1 but showing the cap prepared for the filling operation; Figs. 3, 4 and 5 are detailed perspectives of portions of the device.

Referring to the drawings, the numeral 1 designates a fountain pen barrel of ordinary form provided with the usual pen point 2. The upper end of the pen is bored with a small opening in which is inserted a tube 3 having a gooseneck or trap 4 at the lower end. The tube 3 forms a means of communication between the inner chamber 5 of the pen barrel and the outer atmosphere. The outer end of the tube 3 may be closed, however by a cap 6 which is threaded onto the projection 7 on the end of the barrel.

The pen cap is designated generally by the numeral 8 and is made up of a number of separable parts. The lower portion 9 of the cap (shown in Fig. 4) is provided near its upper end with an inwardly projecting flange 10 and internal screw threads 11. Fitted to the threads 11 is a knurled connection ring 12 shown in Fig. 3 and provided with a threaded portion 13 on which is fastened the upper portion 14 of the cap. The parts of the cap described are preferably made of hard rubber. A soft rubber filling bulb 15 is provided at its open end with an outwardly projecting ring 16 surrounding the mouth of the bulb and tending to prevent the open end from collapsing. The open end of the bulb extends through the connecting ring 12, the beaded portion 16 lying against the end of the threaded portion of the ring. When the lower portion 9 of the cap and the connecting ring 12 are

screwed together, the bead 16 of the bulb 15 will be clamped between the end of the ring 12 and the inwardly projecting flange 10 on the portion 9, as shown in Fig. 2. The parts 9, 12, 14 and 15 when fitted together make up the complete cap for the pen shown in place on the upper end of the pen in Fig. 1. The portion 9 of the cap is provided with an inwardly projecting lug 16' arranged to cooperate with bayonet slots 17 and 18 at opposite ends of the pen barrel for holding the cap in place on the barrel.

When the pen is not in use the cap will be placed over the end provided with the point 2 in the usual manner, it being held in place by the bayonet slot 18 and the projection 16'. When the pen is being used for writing, the cap is placed upon the upper end of the barrel and is held in place by the bayonet slot 17. When the pen is to be filled with ink, the screw cap 6 is removed from the projection 7 and the cap 8 is taken from the end of the pen carrying the point and placed upon the opposite end of the barrel. The portion 14 is then unscrewed from the connecting ring 12, thus leaving the soft rubber bulb 15 exposed. The lower end of the pen is now inserted in any suitable receptacle containing writing fluid and the soft rubber bulb 15 is compressed. This forces the air from the chamber 5 together with any surplus ink which may be in the chamber. When the bulb is released the air in the chamber 5 will be drawn into the bulb as it expands and ink from the receptacle will be forced by atmospheric pressure into the barrel chamber to fill the space from which the air is removed. The sizes of the chamber 5 and the bulb 15 are so related to one another that the expansion of the bulb will completely fill the chamber together with the gooseneck portion 4 of the tube 3. After the bulb 15 has expanded, the cap 8 is removed from the upper end of the pen barrel and the screw cap 6 is replaced to hermetically seal the upper end of the tube 3 to prevent escape of the ink from the lower end of the barrel. During the time that the cap 8 is removed from the barrel prior to the replacing of the screw cap 6, the ink in the gooseneck 4 forms a liquid seal for the tube 3 due to the capillary action of the ink in the tube, thus preventing escape of the ink from the lower end of the pen. The upturned end of the tube retains a sufficient amount of ink, when the pen is

empty, to seal the tube and prevent escape of any residuary ink in the pen when the cap 6 is first removed, preparatory to placing the bulb 15 in position. After the screw cap 6 has been replaced there is of course no longer any necessity for this liquid seal, the end of the tube being positively closed by the cap. After the cap 6 is in place, the portion 14 is replaced upon the connecting ring 12 and the pen is in condition for use the same as any ordinary fountain pen.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is as follows:

1. In combination, a fountain pen having a chamber therein, an opening into said chamber removed from the pen-carrying end thereof, and a liquid seal for said opening.
2. In combination, a fountain pen having a chamber therein, an opening into said chamber removed from the pen-carrying end thereof, and a tube connected with said opening and provided with an upturned end within said chamber to form a liquid seal for said opening.
3. In combination, a fountain pen having a chamber therein, an opening connecting said chamber with the outer atmosphere at a point removed from the pen-carrying end thereof, means for positively closing said opening and a liquid seal for said opening.
4. In combination, a fountain pen having a chamber therein, an opening into said chamber, a suction device arranged to be connected with said opening, means for positively closing said opening, and a liquid seal for said opening.
5. In combination, a fountain pen having a chamber therein and an opening connecting said chamber with the outer atmosphere, a collapsible bulb removably connected with said opening, means for positively closing said opening, and a liquid seal for said opening.
6. In combination, a fountain pen having a chamber therein and an opening into said chamber, a collapsible bulb associated with said opening, a tube connected with said opening and extending into said chamber and having an upturned end within said chamber and a screw cap removably secured to said pen for closing said opening.
7. In combination, a fountain pen having a hollow barrel and a passage communicating with the interior thereof, a cap for said

pen arranged to communicate with said passage and comprising a rigid portion for connecting said cap to said pen, a soft rubber portion, a rigid portion for removably incasing said soft rubber portion, means for positively closing said passage, and a liquid seal for said passage.

8. In a fountain pen, a barrel having a chamber therein and a passage connected with the interior of said chamber, a tube communicating with said passage and having an upturned end within said chamber, removable means for closing said passage, a cap for said pen having a soft rubber tube arranged to be attached to said barrel so that said passage communicates with the interior thereof, and means for detachably securing said cap to said barrel.

9. In a fountain pen, a barrel having a chamber therein, and a passage connected with the interior of said chamber, a tube communicating with said passage and having an upturned end within said chamber, removable means for closing said passage, a cap for said pen comprising a rigid portion having a bayonet joint for connecting said cap to said barrel, a connecting member associated with said rigid part, a soft rubber bulb secured to said rigid part by said connecting member, and a rigid cover for said bulb detachably secured to said connecting member.

10. In combination with the barrel of a fountain pen a cap therefor comprising a rigid portion and a flexible bulb secured to said rigid portion.

11. A cap, for a fountain pen comprising a rigid portion, a flexible bulb secured within said portion, said rigid portion being provided with a removable casing for said bulb.

12. A cap for a fountain pen comprising a rigid portion having separable sections, a bulb secured within said cap and arranged to be exposed by the removal of one of said sections.

13. A cap for a fountain pen comprising a tubular section, a flexible bulb connected with said section and closing one end thereof, and a rigid casing member detachably secured to said section for inclosing said bulb.

In testimony whereof I have signed my name to this specification, on this 31st day of January, A. D. 1916.

WILLIAM J. RUFF.