(No Model.)

M. W. MOORE.

FOUNTAIN PEN.

No. 567,151. Patented Sept. 8, 1896.

Fig. 1.

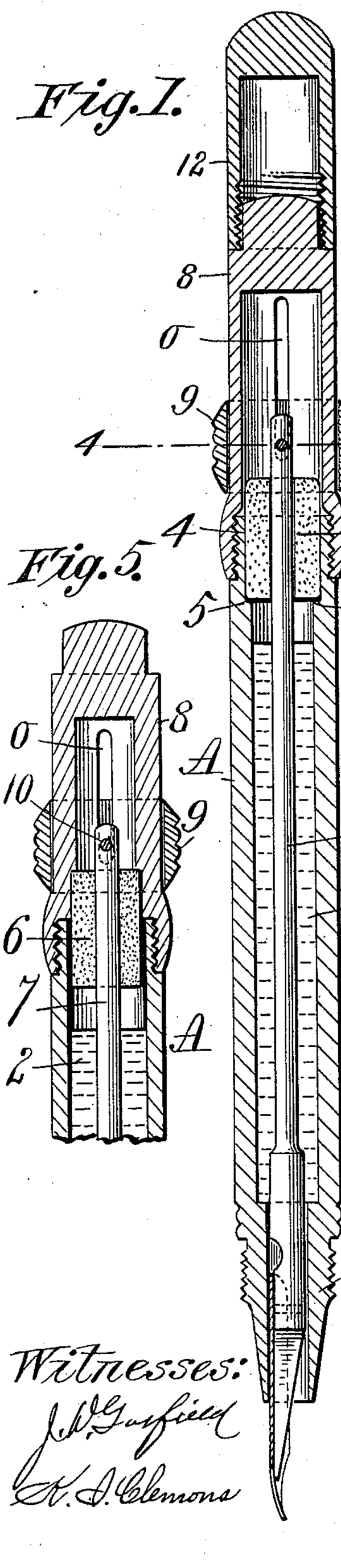


Fig. 2.

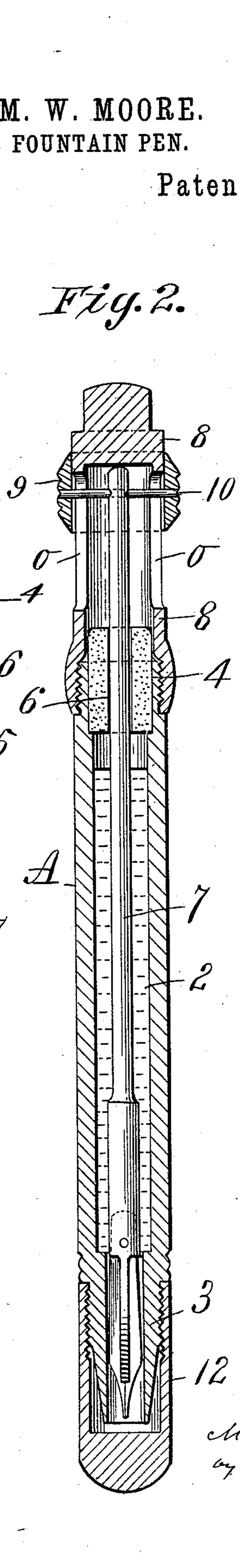


Fig. 4.

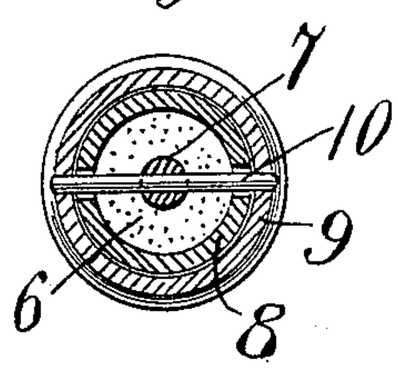
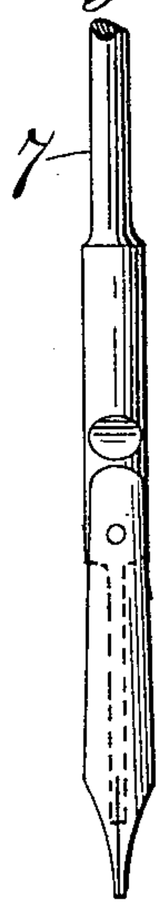


Fig. 3.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 567,151, dated September 8, 1896.

Application filed March 7, 1894. Serial No. 502,675. (No model.)

To all whom it may concern:

Be it known that I, MORRIS W. MOORE, a citizen of the United States of America, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Fountain-Pens, of which the following is a specification.

The object of this invention is to improve the construction of fountain-pens, especially with reference to the formation of the parts at the "tip" end of the pen, whereby the pen-bar and pen may have reciprocatory movements downwardly or forward to present the pen for writing, and also upwardly or inwardly to withdraw the pen within the end of the tip when the pen is not in use, and the upward and inward movement of the pen-bar is to be such, by reason of the construction of the internal portion of the barrel relative to the pen-bar, as to permit the filling of the barrel or reservoir by pouring the ink into the end of the tip, and, furthermore, the object of the invention is to provide improved means for moving the pen-bar; and the invention for improvements in fountain-pens consists in the barrel or fount having the opening therein which leads to the lower forward end of less diameter than at its portion above said forward end, combined with a substantially cylindrical pen-supporting bar, which substantially fits the contracted portion of the forward end opening, and which is adapted to be slid to present the pen outwardly beyond said forward end, and to be moved upwardly within and beyond the contracted end portion of the barrel, then leaving an unobstructed space between it and the larger internal wall of the barrel for the entrance therethrough, into the barrel, of the ink; and the invention furthermore consists in constructions and combinations of parts, all substantially as will hereinafter fully appear and be specified.

In the drawings forming part of this specification, Figure 1 is a longitudinal section of a pen embodying my improvements, this figure showing the parts of said pen in the various positions which they occupy when the pen is in proper condition for use. Fig. 2 is a similar view to Fig. 1, but showing the parts of the pen in the positions which they occupy relatively when the pen is carried in the pocket. Fig. 3 is a side elevation of the end of the pen-bar to which the pen is secured and showing the broad rear side of the pen. Fig. 4 is a section on line 4 4, Fig. 1. Fig. 5 illustrates a modification hereinafter described.

The parts in the above-referred-to drawings are shown much magnified.

In the drawings, A is the barrel of the pen, which, as usual, constitutes the main body thereof, and in its interior is the reservoir 2 for holding the ink. The said barrel of the pen is provided with a tip 3 of less diameter than the barrel and whose extremity is preferably of conical form, and said tip 3 and the barrel A are integrally formed, as shown. The upper end of the barrel has a screw-thread 4 formed thereon, as shown.

The reservoir portion 2 of the barrel has a greater diameter internally than does the tip 3, in order to provide suitable ink-holding space or reservoir therein. The upper extremity of the barrel A is counterbored to a somewhat larger internal diameter than that of the adjoining reservoir 2, thereby forming an annular shoulder 5 therein.

Heretofore it has been the practice to insert in the upper end of the barrel of the pen a cylindrical packing of soft rubber, through which the pen-bar 7 slides, to prevent leakage of ink around said bar at the upper end of the pen-barrel. It has been found, however, in practice that a soft-rubber packing at that place in the pen is objectionable for the reason that the quality of the rubber gradually deteriorates and fails to close against the pen-bar 7 as tightly as is desirable for the above-mentioned purpose, and from its adhesive nature it creates inconvenient friction, which interferes with the necessary free movement of the pen-bar 7 within the packing. In the construction herein described, however, the above-mentioned difficulties as to the packing around the pen-bar 7 are overcome by the use of a soft cylindrical cork packing 6, which fits so closely into the upper end of the barrel A and so closely around the pen-bar 7, which extends through

it, as shown, that no leakage of ink, either between the walls of the barrel and the adjoining side of the cork nor through the perforation in the cork through which the pen-bar slides, can occur. The said cork is that of the most resilient quality obtainable and is driven into the upper end of the barrel down against said shoulder 5, as shown, thereby making a tight joint.

In Fig. 5 is shown a slight modification illustrating the said cork packing 6 tightly placed in the lower end of the cap 8 and adapted to so close the adjoining end of the barrel as to retain the ink therein. This arrangement of the packing in the cap provides for more conveniently drawing the pen-bar and pen out of the barrel without disturbing the adjustment of the packing-cork.

The pen-bar 7 has a conveniently easy sliding motion within said cork for the purpose, as below described, of sliding the pen outwardly when it is to be used for writing, as shown in Fig. 1, or for drawing the pen entirely within the tip 3 when the pen is to be closed and carried in the pocket. The said cork 6 closes the upper end of the barrel and fits so tightly around the pen-bar that no air can enter the end of the barrel closed thereby, and consequently no inconvenience whatever is experienced from the escape of any ink from the tip end of the barrel other than that which goes to the point of the pen while it is being written with, notwithstanding the fact that the fit of the lower enlarged end of the pen-bar is sufficiently free within the tip 3 to permit the ink to flow uninterruptedly to the pen when the latter is being used, as aforesaid.

The cap 8 at the upper end of the barrel is screwed thereon, as shown, and is of such length as permits the upper end of the pen-bar to move therein when the bar is operated, as aforesaid, to project the pen from the tip, as in Fig. 1, or to retire it within the tip, as shown in Fig. 2.

Pens of this class having therein a pen-bar to which the pen is attached, as here shown, have heretofore been constructed in such a way that it has been necessary to remove the cap at the upper end of the barrel in order to slide the pen-bar in either of the above-mentioned directions, and it may be stated also that it has been considered necessary to employ tight caps on the upper end of the barrel with the aforesaid soft-rubber packing for the pen-bars in order to prevent the leakage of ink from the upper end of the reservoir; but by the employment of the above-described cork packing at the upper end of the pen-bar a further improvement has been developed, which is as follows: The cap 8, above referred to, is provided with two longitudinal slots *o o* through the sides of the cap, opposite each other, as shown in Fig. 2, and fitted to the outside of said cap is a sliding ring 9. The upper extremity of the pen-bar is perforated transversely to permit of passing a pin 10 through said slots *o o* and through the said pen-bar and at the same time through said ring 9, thereby uniting the latter to the pen-bar, but permitting it to have a free sliding motion outside of the cap 8, while the latter is secured to the barrel A. Consequently the pen-bar and pen may be moved within the barrel without removing the top cap of the pen.

A protecting tip-cover 12 has a screw connection with the tip 3 to protect the pen proper when it is retired within the tip and the pen is to be placed in the pocket for carrying. The upper end of the cap 8 is of such diameter that the tip-cover 12 may be pushed onto it when removed from the tip 3, so that it is kept in connection with the pen while the latter is being used for writing.

The manipulation of the pen in the use of the above-described structural parts is as follows: To fill the reservoir with ink, the tip-cover 12 is removed, the tip being held upward and the pen and pen-bar retired within the barrel until the lower end of the cylindrical portion of the pen-bar is carried within and beyond the contracted forward end of the bore of the tip portion of the barrel, then leaving an unobstructed space between the pen-bar and the larger internal wall of the barrel for the entrance therethrough of the ink into the barrel. After pushing the pen-bar and pen to the position shown in Fig. 1 by sliding ring 9 on the cap 8 the pen is in operative position for writing. Having finished the latter, said ring is drawn upward again, retiring the pen within the tip 3, and the tip-cover 12 is screwed thereon for the purpose stated.

In the drawings the pen-bar is shown to be of such length that to retire the enlarged cylindrical portion of said bar within the barrel of the pen it is necessary to partly unscrew the cap 8; but I do not limit myself to such construction, and my claims are not restricted thereto.

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

1. In a fountain-pen, in combination, a pen-bar having its forward end portion of substantially cylindrical form, and carrying at its said forward end the writing-pen, the barrel or fount having the circular bore or chamber therein which leads to its forward end of less diameter than at its portion which is above said forward end, said contracted circular opening being, however, of a diameter as great as the width of the writing-pen, and said substantially cylindrical forward end portion of the pen-bar fitting the round contracted forward end opening in the barrel whereby the pen-bar is adapted to be slid to present the pen outwardly, and to be moved upwardly within and beyond the contracted end portion of the barrel, then leaving an unobstructed space between it and the larger

internal wall of the barrel for the entrance through into the barrel of the ink, substantially as described.

2. In a fountain-pen, an ink-fount having a circular orifice at its outer end, an enlarged chamber above said orifice, and a practically cylindrical pen-support adapted to be moved into the circular orifice, and to be withdrawn within the enlarged chamber, by which withdrawal the end orifice is opened for filling, all combined substantially as described.

3. In a fountain-pen, the ink-fount having its tip integral with its body portion and having an opening in said tip through which the pen and its support may be projected, and an ink-chamber of greater diameter above said opening, a pen-support equal in diameter to the width of the pen which it carries, and means for projecting said pen-support from said opening, and for withdrawing it within the chamber so that the chamber may be filled from the point, all combined substantially as described.

4. In a fountain-pen, the barrel and tip made integral, said tip having an opening of a width to pass a pen and pen-support, a chamber in the barrel above said tip of greater diameter than the opening in the tip, a pen-support as wide as the pen and extending through the opening in the tip, a pen-bar connected to said tip and extending through the ink-chamber, a packing surrounding said bar above said chamber, and means for moving said bar arranged above said chamber, all combined substantially as described.

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