

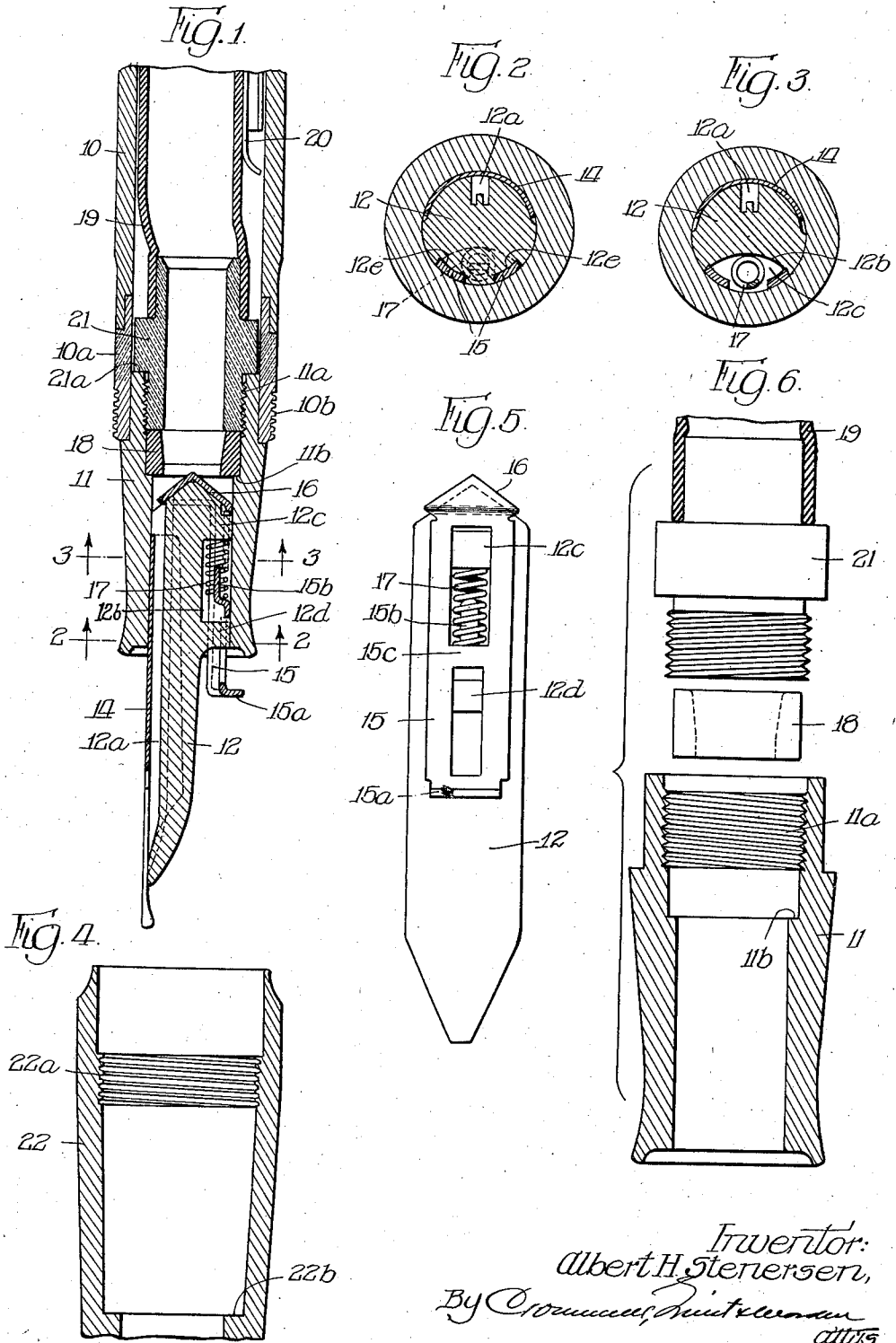
Jan. 3, 1939.

A. H. STENERSEN

2,142,532

FOUNTAIN PEN

Filed June 28, 1937



Inventor:
Albert H. Stenersen,
By *Crowell, Tipton & Co.*
attys.

UNITED STATES PATENT OFFICE

2,142,532

FOUNTAIN PEN

Albert H. Stenersen, Chicago, Ill., assignor to The Wahl Company, Chicago, Ill., a corporation of Delaware

Application June 28, 1937, Serial No. 150,671

4 Claims. (Cl. 120—48)

This invention relates to fountain pens, and is concerned primarily with improvements whereby certain advantages in construction and operation are obtained.

5 One of the objects is to provide an improved construction for closing off or sealing the ink reservoir from the pen section when the pen point cap is applied to the pen.

10 Another object is the provision of an improved construction whereby exhaustion of ink from a pen of the collapsible-sac reservoir type may be visually ascertained before the pen runs completely dry.

15 Another object is the provision of an improved construction whereby the assembly of a collapsible-sac reservoir in conjunction with a cut-off valve device is simplified and facilitated and whereby disassembly for inspection, cleaning, or replacement of parts is likewise simplified.

20 Still another object is the provision of an improved construction for obtaining strength and preventing ink leakage in a pen having ink visibility and feed cut-off features.

25 Other and further objects and advantages will be pointed out or indicated hereinafter or will be apparent to one skilled in the art upon an understanding of the invention.

30 For the purpose of aiding in an explanation of the invention, I show in the accompanying drawing forming a part of this specification, and hereinafter described, one form of construction in which it may be embodied. It is to be understood, however, that this is presented merely by way of illustration or example and is not to be construed for the purpose of limiting the appended claims short of the true and most comprehensive scope of the invention in the art.

In the drawing,

40 Fig. 1 is a part longitudinal sectional view of a fountain pen embodying the invention;

Fig. 2 is a transverse sectional view on approximately line 2—2 of Fig. 1;

45 Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a part longitudinal sectional view of a pen point cap or cover for parts illustrated in Fig. 1;

50 Fig. 5 is a detail showing, on a somewhat larger scale than Fig. 1, a bottom view of the feed bar with the cut-off valve assembled therewith; and

Fig. 6 is a composite longitudinal sectional view of some of the parts shown in Fig. 1 in position for assembly.

55 The nature of the invention will be most quick-

ly ascertained from a detailed description of the construction illustrated in the drawing.

The reference numeral 10 designates the lower portion of the pen barrel, which may be of decorative or opaque character, and the reference numeral 10a designates a lower end portion of the barrel which is of transparent material. The portion 10a may be in the nature of a short sleeve or section of tubing permanently cemented to the portion 10 so as to form, in effect, an integral part thereof.

The reference numeral 11 designates the pen section sleeve which is reduced at its upper portion so as to fit tightly, but removably, within the lower end of the barrel. The portion of the transparent part 10a which overlaps the pen section sleeve may be stained so as to have the same color as the pen section sleeve.

At its upper end the pen section sleeve is internally screw threaded at 11a and below its threaded portion is formed with an inwardly jutting annular shoulder or ledge 11b. In the lower portion of the pen section sleeve are mounted the feed bar 12, the pen point 14, and the valve slide 15 which carries the cut-off valve 16.

The feed bar 12 is provided in its upper side with a longitudinal ink feed channel 12a which underlies the pen point, and in its under side is provided with a transverse slot 12b, leaving two abutments 12c and 12d. These abutments are in turn formed with parallel longitudinal grooves 12e (see Fig. 2). The rear end of the feed bar is finished in frusto-conical form.

On the feed bar is mounted the valve slide 15, which fits in the grooves 12e and is slotted longitudinally to accommodate the outer ends of the abutments 12c and 12d. This valve slide is formed of a sheet of thin but stiff metal which is properly resistant to the ink, and is curved transversely so as to conform to the peripheral contour of the feed bar and the bore wall of the pen section sleeve 11. At its lower end it is formed with an outwardly turned flange 15a, and at its upper end carries the conically shaped valve 16 which is formed as an integral part of the slide and is adapted to fit on the frusto-conical end of the feed bar. The slide is formed also with an inwardly bent tongue 15b adapted to travel in the slot 12b of the feed bar and function as a retainer and aligning guide for a helical spring 17 which is disposed in the slot 12b with its rearward end bearing against the abutment 12c and its forward end against the portion 15c of the valve slide. The spring 17 thus tends to hold the slide 15 in its forward position, as in

Figs. 1 and 2, but the slide may be moved rearwardly against the pressure of the spring and thereby move the valve 16 rearwardly.

The valve slide and spring 17 are assembled on the feed bar as above described, and this assembly, together with the pen point 14, are inserted together into the pen section sleeve 11 where they are retained securely by friction, the valve slide, however, being movable longitudinally as above described, and the projecting portion 15a of the slide affording means whereby it may be engaged to move it rearwardly.

Within the upper portion of the pen section sleeve 11 is disposed an elastic rubber gasket 18, which is of sleeve form and provides a seat for the valve 16, said valve being effective to close the orifice of the gasket when the valve is moved to rearward position as above described. This valve seat gasket 18 rests upon the shoulder 11b of the pen section sleeve and extends for a short distance into the threaded portion 11a.

The reference numeral 19 designates the filling or reservoir sac of the pen, same being of conventional character in that it is closed at its upper end and is of elastic material so that it tends normally to remain in its distended condition. A pressure bar 20 of conventional character is arranged in the barrel alongside the sac, and is operable in the usual manner by a pivotal side lever to compress or collapse the sac. The open lower end of the sac is telescoped onto and secured to a short connecting sleeve 21, which is transparent, and may be made conveniently of pyroxylin or similar material. The lower end portion of this sleeve is screw threaded for engagement in the threaded portion 11a of the pen section sleeve, and it is also formed with a shoulder 21a adapted to abut the upper end of the pen section sleeve. When the transparent sleeve 21 is thus mounted in the pen section sleeve 11, and the latter is mounted in the lower end of the barrel as above described, the unobstructed transparent portion of the sleeve 21 will be opposite the transparent portion 10a of the barrel, as a consequence of which the user may see entirely through the barrel as the pen is transparent throughout its entire circumference for a short distance above the upper end of the pen section sleeve. The bore or cavity of the transparent sleeve 21, together with the cavity of the ink sac 19, constitute the ink reservoir of the pen.

When assembled as above described, the lower end of the transparent sleeve 21 abuts the upper end of the valve seat gasket 18 and holds the gasket tightly compressed against the shoulder 11b.

The pen is filled in the conventional fashion by immersing the projecting portion of the feed bar and pen point in a body of ink, and operating the side lever to compress the sac 19 and then release it to permit it to expand and draw ink into the reservoir. When the pen is uncapped as in use for writing, the valve 16 is moved to and held in the position shown in Fig. 1 by the spring 17, and ink may flow from the reservoir through the gasket 18 and into the feed channel 12a of the feed bar to supply the pen point. The cover cap 22 is provided to house the pen section in the customary manner, being screw threaded at 22a for engagement with threads 10b on the barrel. The cap is provided with a continuous inwardly projecting ledge or shoulder 22b in position to overlap the flange 15a of the valve slide, so that in the op-

eration of seating the cap on the pen, the valve slide will be moved rearwardly to seat the valve 16 on the valve seat 18, and thus seal off the ink reservoir from communication with the pen section. Thus, when the pen is capped, leakage of ink from the reservoir is prevented.

Inasmuch as it is quite desirable that the feed bar, pen point and valve slide remain securely in their proper positions in the pen section sleeve at all times, it is important that the elastic valve seat 18 be rendered otherwise accessible for removal and replacement in event it loses its elasticity or becomes permanently distorted. The construction facilitates such removal and replacement of the valve seat 18, as well as the original assembly of the parts. The barrel may be entirely withdrawn from the pen section sleeve 11, transparent sleeve 21, and ink sac 19, and then the transparent sleeve 21 may be unscrewed from the pen section sleeve, thus permitting removal of the valve seat 18, as illustrated in Fig. 6. When the parts are assembled, the cooperation of the valve seat 18 with the pen section sleeve and the transparent sleeve 21 prevents any leakage of ink between the two sleeves, and the pressure of the valve 16 on the valve seat, when the valve is seated, increases the sealing pressure of the valve seat against the end of the transparent sleeve 21. The transparent area afforded throughout the entire circumference of the barrel by the portion 10a and sleeve 21 enables the user to see at a glance whether or not the pen is in need of filling, this being made evident by absence of ink in the transparent portion prior to the time that the pen runs completely dry. The construction is of particular advantage in that it permits access to be had to the interior of the pen section sleeve without removal of the feed bar and pen point and without removal of the ink sac from its connection. Another advantage of this construction resides in the fact that the relationship of the transparent portion of the barrel and the transparent connecting sleeve is definitely fixed by the nature of the connections, so that when the structure is assembled they will be in the proper position. The disposal of the narrow transparent area of the barrel in proximity to the pen section permits that area to be completely covered and received by the skirt of the cap when the cap is in place.

What I claim is:

1. In a fountain pen, in combination, a pen section sleeve, an annular valve seat therein, a feed bar and pen point mounted in the sleeve below said valve seat, said feed bar being grooved longitudinally in its side which is remote from the pen point, a valve slide movable longitudinally in the grooved portion of the feed bar and retained therein by the sleeve, said slide having an end portion projecting beyond the lower end of the pen section sleeve and disposed laterally of the feed bar, a valve carried by the valve slide and movable rearwardly thereby to seated position on the valve seat, and a spring housed in the feed bar and cooperating with the valve slide to urge it forwardly to unseat the valve.

2. In a fountain pen, in combination, a pen section sleeve having an inwardly projecting annular shoulder, an annular valve seat within the pen section sleeve with its forward end seated on said shoulder, a connecting sleeve removably mounted in the pen section sleeve and abutting the rearward end of the valve seat to hold said valve seat pressed against said shoulder, and a

valve movable longitudinally in the pen section sleeve into and out of seating engagement with the forward portion of the valve seat.

5 3. In a fountain pen, in combination, a pen section sleeve, a connecting sleeve disposed rearwardly of said pen section sleeve and removably connected thereto, an annular valve seat retained in the pen section sleeve by said connecting sleeve but removable rearwardly from the former upon removal of the latter, and an ink receptacle connected to said connecting sleeve and communicating therewith, whereby ink may flow from said receptacle through said connecting sleeve and annular valve seat to said pen section sleeve.

15 4. In a fountain pen, in combination, a barrel having adjacent its forward end a narrow an-

nular transparent portion, a pen section sleeve having a reduced portion retentively engaged in the lower end of the barrel with its rearward terminus adjacent said transparent portion, a rigid connecting sleeve demountably secured in the rearward portion of said pen section sleeve and having an unoccupied annular transparent portion within the annular transparent portion of the barrel, and an ink container connected to the connecting sleeve rearwardly of said transparent barrel portion so that ink may flow from said container through the connecting sleeve to the pen section sleeve and be visible from the exterior through said transparent portions without contacting the transparent barrel portion.

ALBERT H. STENERSEN.