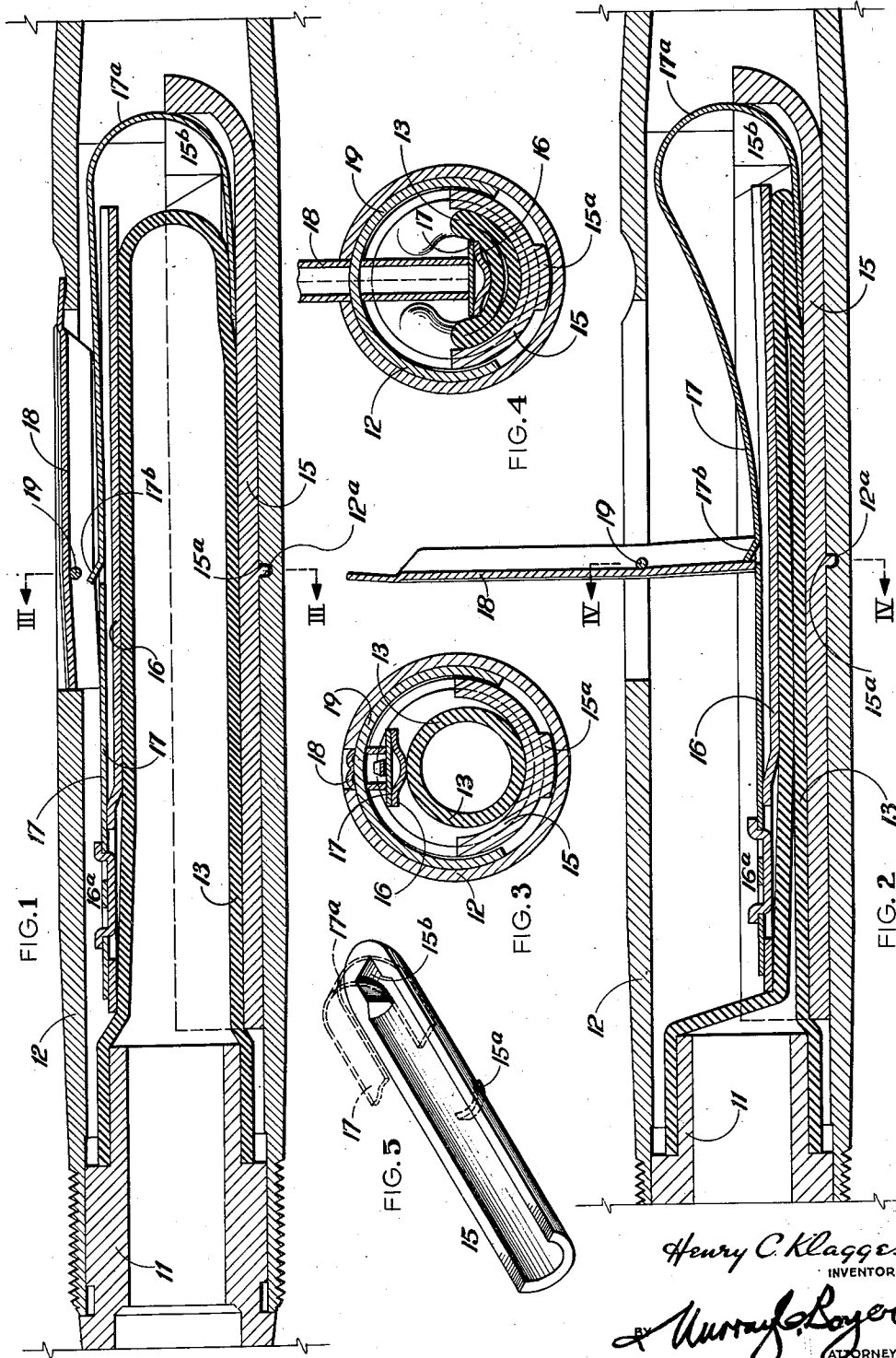


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FOUNTAIN PEN WITH POSITIONING  
MEANS FOR THE INK SAC THEREOF  
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## FOUNTAIN PEN WITH POSITIONING MEANS FOR THE INK SAC THEREOF

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My invention relates to fountain pens and similar writing implements in which ink-containing sacs are employed.

In a fountain pen of this type, the sac is filled with ink by the manipulation of a lever carried by the barrel of the fountain pen which actuates a presser-bar into and out of engagement with the sac. When not in use, the presser-bar is normally maintained out of action by means of a spring operatively connected therewith; which spring also maintains the lever in substantial alignment with the fountain pen barrel.

An important object of my invention is to secure uniform alignment of the parts of the filling mechanism, including the ink-sac, relatively to each other.

And a further object of my invention is to provide means for maintaining the ink-sac in substantially concentric relation with respect to the barrel of the fountain pen in order to prevent lateral displacement of such sac when engaged by the presser-bar; such means comprising a liner or cradle support underlying the collapsible portion of the ink-sac and disposed between the same and the inner wall of the barrel.

For the purpose of positioning the ink-sac within the barrel of the fountain pen, I provide a liner or cradle support which may be substantially U-shape in cross-sectional contour—preferably made from a suitable form of plastic material—which cradle support or liner underlies the collapsible portion of the ink-sac longitudinally of the fountain pen barrel. This liner or cradle support may be held in position lengthwise of the barrel by means of a small lug or projection on its underside which lies in the annular groove formed in the barrel wall and accommodating the wire ring serving as the pivotal support for the lever. To prevent lateral displacement of the cradle or liner, the spring operatively associated with the presser-bar mechanism has a rear curved end which lies in a recess at the rear end of the liner or cradle support; such spring being substantially of the same width as the recess.

These and other features of my invention are more fully set forth hereinafter; reference being had to the accompanying drawings, more or less diagrammatic in character, in which:

Figure 1 is a longitudinal elevation, in section, of sufficient of a fountain pen of the ink-sac type to illustrate the features of my invention; the parts of the presser-bar mechanism operable to effect filling of the ink-sac being shown in one position.

Fig. 2 is a similar sectional view, showing the parts of the presser-bar mechanism in another position.

Fig. 3 is a cross-sectional view on the line III—III, Fig. 1.

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Fig. 4 is a cross-sectional view on the line IV—IV, Fig. 2.

Fig. 5 is a detached perspective view of the liner or cradle support for the ink-sac.

This invention, relating to fountain pens, has been designed more particularly for association with fountain pens having ink reservoirs in the form of collapsible sacs—usually of rubber—and lever-operated presser-bar mechanism for collapsing or deflating such sacs to expel the air therefrom whereby, upon release of such collapsing or deflating means ink, from a suitable supply into which the nib end of the fountain pen has been dipped, will enter the sac. In the manufacture of fountain pens great care is taken, when securing the ink-sac to the pen section, to insure that such sac is in proper alignment with respect to such section in order that when assembled with the barrel the ink-sac will lie, throughout its length, in substantially concentric relation with respect to the interior space of such barrel. It is highly desirable, in order that fountain pens of any given run of production may function exactly alike and may receive the same quantity of ink upon proper manipulation of the lever-actuated presser-bar mechanism, that the ink-sac occupy a position within the barrel that will permit proper engagement of the presser-bar therewith. Notwithstanding the care usually exercised in the mounting of the parts and the assembly thereof into complete fountain pens, it has frequently happened after fountain pens were assembled under former conditions, that the ink-sacs were not always in alignment with the presser-bars for most efficient deflation. Unless the ink-sac is in exact alignment with the presser-bar, the latter will have a tendency to push the ink-sac to one side of the barrel without proper collapse or deflation of the same, if at all, and hence, in the absence of the desired vacuum resulting from the expulsion of air from the ink-sac, little, or no ink will enter the same. The use of my improved cradle or liner support underlying the ink-sac and disposed between the same and the inner wall of the barrel, will correct this condition.

For the purpose of positioning the ink-sac within the fountain pen barrel in order that it may be maintained in exact alignment with the presser-bar, I provide a liner element or cradle support arranged longitudinally within such barrel and disposed between the inner wall of the same and the collapsible portion of the ink-sac, which cradle or liner receives the ink-sac and supports the same in concentric relation therewith and substantially axially of the barrel and in alignment with the presser-bar.

In the drawings, Fig. 1 represents a longitudinal section of a fountain pen which, while showing

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a portion of the pen section, omits the nib and feed-bar assembly as well as the rear end of the barrel; these details being unnecessary to a complete understanding of the present invention. In this view, the pen section is indicated at 11; the barrel at 12, and the ink-sac—secured to the inner end of the pen section—is indicated at 13. While the ink-sac at its connection with the inner end of the pen section is concentrically disposed with respect to the barrel, the presence of the presser-bar and its operating mechanism tends to displace the ink-sac out of exact alignment with the axis of the inner bore of the barrel. For the purpose of supporting the collapsible portion of the ink-sac in substantially concentric relation and axial position with respect to the fountain pen barrel and substantially filling the space between the ink-sac and the inner wall of the barrel opposite the presser-bar, I provide a liner or cradle support, indicated at 15, and which is preferably made of a suitable plastic material.

In the present instance the presser-bar mechanism is of substantially the same character as that ordinarily employed in fountain pens of the ink-sac type. This mechanism includes the presser-bar proper, indicated at 16; a spring 17 connected at its forward end to the presser-bar, as indicated at 16<sup>a</sup>, and a lever, indicated at 18, pivotally mounted on a wire ring 19 which lies in an annular groove or recess 12<sup>a</sup> formed in the inner wall of the barrel 12. The rear portion of the spring 17 is curved at 17<sup>a</sup>, and its free end is brought forward and underlies the closed end of the ink-sac.

The liner or cradle 15 for supporting and positioning the ink-sac is provided, intermediate its ends, with a lug or projection 15<sup>a</sup> which lies, when assembled with the pen barrel, in the annular groove or recess 12<sup>a</sup> of the same, and this serves to position the cradle or liner longitudinally of the pen barrel. In order that the cradle or liner may be maintained in the desired position laterally with respect to the ink-sac, the rear end of such liner or cradle—which may be said to be closed—is provided with a recess, indicated at 15<sup>b</sup>, which receives the curved rear end 17<sup>a</sup> of the spring 17, as illustrated in Figs. 1, 2 and 5; the width of such recess being substantially the same as that of the spring.

Figs. 3 and 4 show the relative positions of the presser-bar mechanism with respect to the ink-sac in the inflated and deflated conditions of the latter. In order that the lever 18 may not pass the position indicated in Fig. 2, in the operation of the presser-bar mechanism to fill the ink-sac, the spring 17 may be provided with a lug 17<sup>b</sup>, which lug may be attached to the spring or struck up from the metal of the same; being shown in the present instance as struck up. When moved to its full extent, the end of lever will abut this lug, and such full and single movement of the lever will cause the presser-bar to collapse the ink-sac substantially throughout its entire extent, as illustrated in Fig. 2; insuring displacement of the air within the same so that ink may enter therein after the lever has been restored to its inactive position. While this feature is of value in the proper operation of the presser-bar mechanism, it forms no part of my invention relating to the liner or cradle support for the collapsible portion of the ink-sac.

It will be understood that the constructional details herein described and shown in the drawings are for illustrative purposes only and not as

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limitations, since modifications may be made therein without departing from the spirit of my invention; all of which is deemed to be within the scope of the appended claims.

I claim:

1. The combination, with a fountain pen comprising a barrel, a pen section secured to the outer end of said barrel, a collapsible ink-sac secured to the inner end of the pen section and arranged within the barrel longitudinally of the same, and presser-bar mechanism for collapsing the ink-sac including the presser-bar proper and a curved end leaf spring connected to and extending longitudinally of the presser-bar, of an independently removable cradle support disposed within the barrel and underlying the full length of the collapsible portion of the ink-sac and into which the latter may be collapsed; said support being substantially trough-shaped with a closed end engaged by the curved end portion of the leaf spring and being removable independently of the presser-bar mechanism, the pen section and the collapsible ink-sac when the latter parts are separated from the barrel.

2. A fountain pen comprising a barrel, a pen section secured to the end of the same, a collapsible ink-sac secured to the pen section and arranged within the barrel longitudinally of the same, and presser-bar mechanism for collapsing the ink-sac including the presser-bar proper and a curved end leaf spring connected to and extending longitudinally of the presser-bar, in combination with an independent cradle support disposed within the barrel and underlying the collapsible portion of the ink-sac and into which the latter may be collapsed; said support being substantially U-shape in cross section and having a portion providing a seat for engagement by a portion of the curved end of the leaf spring and being removable from the barrel independently of the presser-bar mechanism, the pen section and the collapsible ink-sac when the latter parts are separated from the barrel.

3. The arrangement defined in claim 1, with cooperative means between the pen barrel and the independent cradle support for preventing endwise movement of the latter when disposed within the fountain pen barrel.

4. The arrangement defined in claim 1, with a pen barrel provided with an internal annular groove and the independent cradle support having a projection intermediate its ends seating in said groove to prevent endwise movement of the cradle support when the latter is disposed within the fountain pen barrel.

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