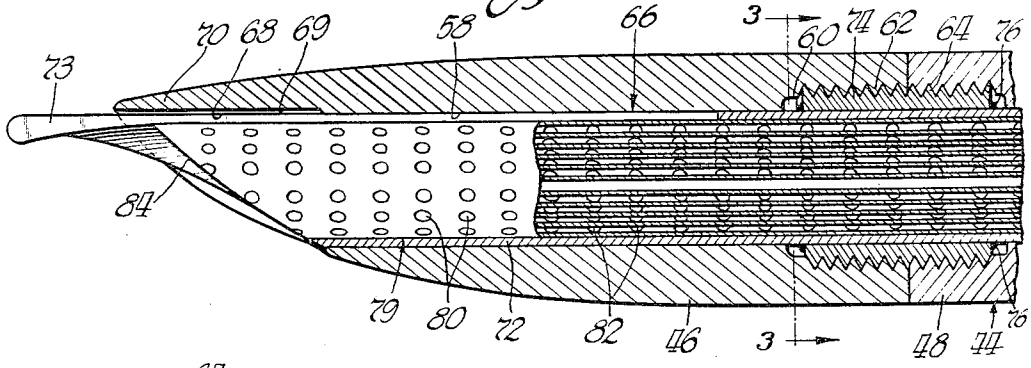
Dec. 18, 1956 I. D. TEFFT 2,774,332

FOUNTAIN PENS

Filed Jan. 9, 1952

Fig. 2



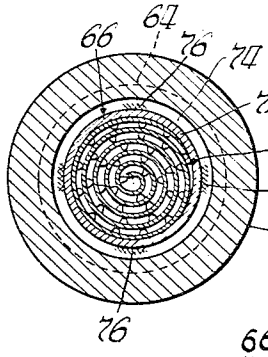
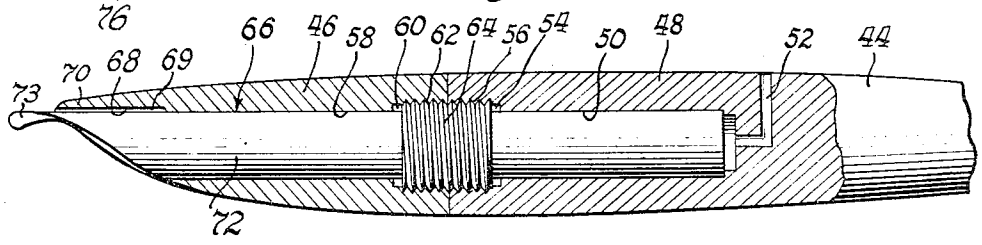


Fig. 3

Fig. 1



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FOUNTAIN PENS

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2 Claims. (Cl. 120—50)

The present invention relates to fountain pens and more particularly to a capillary fountain pen of the type having a capillary ink reservoir adapted to be filled by capillary action and retain the ink therein by capillary action except when the ink is drawn out in a writing operation.

An object of the invention is to provide an improved fountain pen of the foregoing character.

Another object is to provide a capillary type fountain pen of simple and inexpensive character that is made up of two main parts, a body and a self-contained writing unit, in which the unit includes a writing nib.

Another object is to provide a simple and inexpensive fountain pen having a body and a self-contained writing unit, including a writing nib and ink reservoir, that can be inserted in and removed from the pen body by a simple manipulation.

Another object is the provision of a fountain pen having a body and a writing unit containing a casing with an ink reservoir therein, in which the writing unit casing has a portion integral therewith forming a writing nib.

Still another object is to provide a fountain pen having a body and a self-contained writing unit, in which the writing unit includes a casing with a writing nib integral therewith, and an ink reservoir element in the casing in contact with the casing and throughout a large area for establishing effective ink feeding relation with the nib.

A further object is to provide a capillary fountain pen including a separable body and a writing unit having a capillary reservoir element, adapted for filling the reservoir element from the front or from the rear after separation of the barrel, which is of exceedingly simple and inexpensive construction.

A still further object is the provision of a capillary pen of simple and inexpensive construction having a body, and a writing unit containing an ink reservoir and a writing nib, in which the body is made of separable parts into both of which the writing unit extends and which are held together by the writing unit.

Other objects and advantages will appear from the following detailed description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a fragmentary view of a pen embodying the invention and showing a portion of the pen body in section;

Fig. 2 is a large scale longitudinal sectional view of a portion of the pen shown in Fig. 1, with the ink filler-and-reservoir element partially in elevation and partially in section;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2.

A principal feature of the pen of the present invention is its simplicity and economy in the materials used and in manufacturing methods. The pen is made up of only a small number of parts each of which is simple and inexpensive, including a body and a self-contained writing unit capable of insertion into and removal from the body by a simple manipulation.

The invention encompasses a simple construction, having a separable body and a writing unit which serves to secure the sections of the body together. The construction is such as to enable the reservoir element to be filled from the front, or from the rear after separation of the barrel sections. The invention furthermore embodies features having to do with the integrity of the nib and casing of the writing unit and the ease with which the writing unit can be inserted into and removed from the pen body.

The pen of Figs. 1–3 includes a body 44 which may be of the type designed for a desk set and includes a front section 46 and a rear section 48 fitted together and together forming a pen body. The rear section 48 may also be referred to as a barrel, and the front section 46 as a shell. However, for convenience they will be referred to herein as sections of a pen body. The rear section 48 is provided with a longitudinal bore 50 having a vent 52 at its rear end and a counterbore 54 opening through the forward end, the counterbore being interiorly threaded as at 56. The front section 46 is provided with a longitudinal bore 58 extending therethrough, in alignment with the bore 50 when the body sections are fitted together. The bore 58 has a counterbore 60 at its rear end and provided with interior threads 62. The threads 56 and 62 cooperate with threads 64 on the writing unit 66, as will be explained later. The bore 50 rearwardly of the counterbore 54 is substantially cylindrical, as is the bore 58 in its portion immediately forward of the counterbore 60. The forward end of the bore 58 is slightly enlarged at 68 which with the nib of the writing unit forms a capillary space 69 similar in shape and for a purpose similar to that referred to in connection with the first embodiment of the invention. The forward end of the pen body has an inclined shape forming a hood-like portion 70.

The writing unit 66 includes a casing 72 and a nib portion 73 integral therewith. The threads 64 preferably are formed on a sleeve 74 which is fitted on the casing 72 intermediate the ends of the latter and secured in the desired position by convenient means such as by welding 76 (Figs. 2 and 3). If desired, the casing 72 may be provided with an integral enlargement, appropriately threaded, instead of the separate sleeve 74. The casing 72 is provided with a capillary ink reservoir element 79 which may be of the spiral wrap type disclosed and which will be referred to in detail later.

The construction enables the writing unit 66 to be inserted into and removed from the pen body by a simple manipulation. In inserting the unit, the sections of the body are of course first separated. The forward end of the unit is then inserted into the bore 58 from the rear end of the latter and threaded into the threaded portion 62 of the counterbore 60. The extent of threading the unit into the front section 46 may be as desired according to visual observation to a position wherein the nib portion 73 of the writing unit 66 is in register with the forward hood-like portion 70 of the body, or provision may be made whereby the forward end of the sleeve 74 engages the forward end of the counterbore 62 for determining the extent of threading the writing unit into the bore. After the unit is thus inserted in the front section 46 the rear section 44 is threaded onto the sleeve 74 until it is run up against the front section.

The sections of the body 44 are then held together by the threaded sleeve 74 and the writing unit may be readily removed merely by separating the sections of the body and threading the writing unit out of the front section.

The pen may be easily filled through the forward end of the pen, or it may be filled through the rear end of the writing unit after the sections of the body have been sep-

arated and the rear section removed. In filling the pen from the forward end, the forward end of the pen is inserted in a supply of ink and the capillary reservoir element fills with ink, and the air in the element is expelled through vent 52. However, if it is desired to fill the writing unit from the rear end thereof the rear section 48 of the body is removed from the front section, which exposes the rear end of the unit and the latter can then be inserted in a supply of ink in a position wherein the ink contacts the rear end of the reservoir element 78 and fills the element by capillary action. In the latter case the air in the reservoir element is expelled through the forward end thereof in the filling operation.

The ink reservoir element 78, as mentioned above, may be of spiral wrap type disclosed and claimed in Bartell Patent No. 2,522,555, issued September 19, 1950. Reference may be made to that patent for full details of the reservoir element but a brief description of the same will be given here for convenience. The spiral wrap reservoir element may be formed from a sheet of desired material such as silver or plastic, provided with a plurality of apertures that are punched in the sheet forming irregular tongues turned substantially perpendicular to the plane of the sheet, to form projections. The sheet is then rolled and the projections space the adjacent convolutions apart, forming ink storage spaces of capillary dimension between adjacent convolutions. Such apertures are indicated at 80 and the projections at 82, the projections being here illustrated in more or less diagrammatic form. The apertures provide capillary communication between adjacent ink storage spaces, and the apertures in the outermost wall element or convolution establish communication between the outermost space in the element and the space between the element and the casing 72. The spaces between adjacent convolutions of the reservoir element open out through the respective open ends of the casing 72. The forward end of the reservoir element may be inclined as indicated at 84 for following generally the inclinded shape of the forward end of the bore 58.

I claim:

1. A capillary fountain pen comprising a pen body including a front section and a rear section, the front section having a bore therethrough and the rear section having a vented bore in its front end portion, the two bores together forming a single continuous bore when the sections are fitted together in end-to-end relation, and a self-contained writing unit removably mounted in the continuous bore including a tubular, integral casing and nib element open at both ends extending from the rear end of the bore to a point adjacent the forward end thereof and in engagement with the surface of the bore throughout substantially its entire length, the casing and nib element including a rear casing element and a forward arcuate slitted nib element concentric therewith and extending forwardly in the bore and having a tapered writing point, the casing and nib element forming a tube of uniform diameter and opening through each end at full-diameter dimension and the casing element being substantially longer than the nib element, said nib element being contained within said bore except its writing point which projects forwardly of the pen body, the casing element having a threaded portion intermediate its ends and the body sections having interior threaded portions engaged with the threaded portion on the casing element operative for securing the body sections together and mounting the writing unit in the body, and a unitary, substantially cylindrical, resilient capillary filler-and-reservoir element in and confined by said casing and nib element with a portion in capillary ink feeding relation with said nib element throughout substantially the entire arcuate dimension of the latter and substantially the entire longitudinal extent of the portion of the nib element disposed inwardly of the extreme forward end of the pen body, said filler-and-reservoir element being substantially longer than said nib element and substantially filling the casing and having capillary spaces distributed through its volume, said filler-and-reservoir element constituting the sole ink storage means in the pen and having a capacity equivalent to that of a conventional fountain pen and being capable of filling by capillary action and holding ink therein by capillary action except when it is written out by capillary action.

2. A capillary fountain pen comprising a pen body including a front section and a rear section, the front section having a bore therethrough and the rear section having a vented bore in its front end portion, the two bores together forming a single continuous bore when the sections are fitted together in end-to-end relation, and a self-contained writing unit removably mounted in the continuous bore including a tubular, integral casing and nib element open at both ends extending from the rear end of the more to a point adjacent the forward end thereof and in engagement with the surface of the bore throughout substantially its entire length, the casing and nib element including a rear casing element and a forward arcuate slitted nib element concentric therewith and extending forwardly in the bore and having a tapered writing point, the casing and nib element forming a tube of uniform diameter and opening through each end at full-diameter dimension and the casing element being substantially longer than the nib element, said nib element being contained within said bore except its writing point which projects forwardly of the pen body, the casing and nib element being slitted from the writing point rearwardly through a substantial length of the casing length, the casing element having a threaded portion intermediate its ends and the body sections having interior threaded portions engaged with the threaded portion on the casing element operative for securing the body sections together and mounting the writing unit in the body, and a unitary, substantially cylindrical, resilient capillary filler-and-reservoir element in and confined by said casing and nib element with a portion in capillary ink feeding relation with said nib element throughout substantially the entire arcuate dimension of the latter and substantially the entire longitudinal extent of the portion of the nib element disposed inwardly of the extreme forward end of the pen body, said filler-and-reservoir element being substantially longer than said nib element and being in capillary ink transfer relation with the slit in the casing and nib element throughout the length of the slit, and substantially filling the casing and having capillary spaces distributed through its volume, said filler-and-reservoir element constituting the sole ink storage means in the pen and having a capacity equivalent to that of a conventional fountain pen and being capable of filling by capillary action and holding ink therein by capillary action except when it is written out by capillary action.

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