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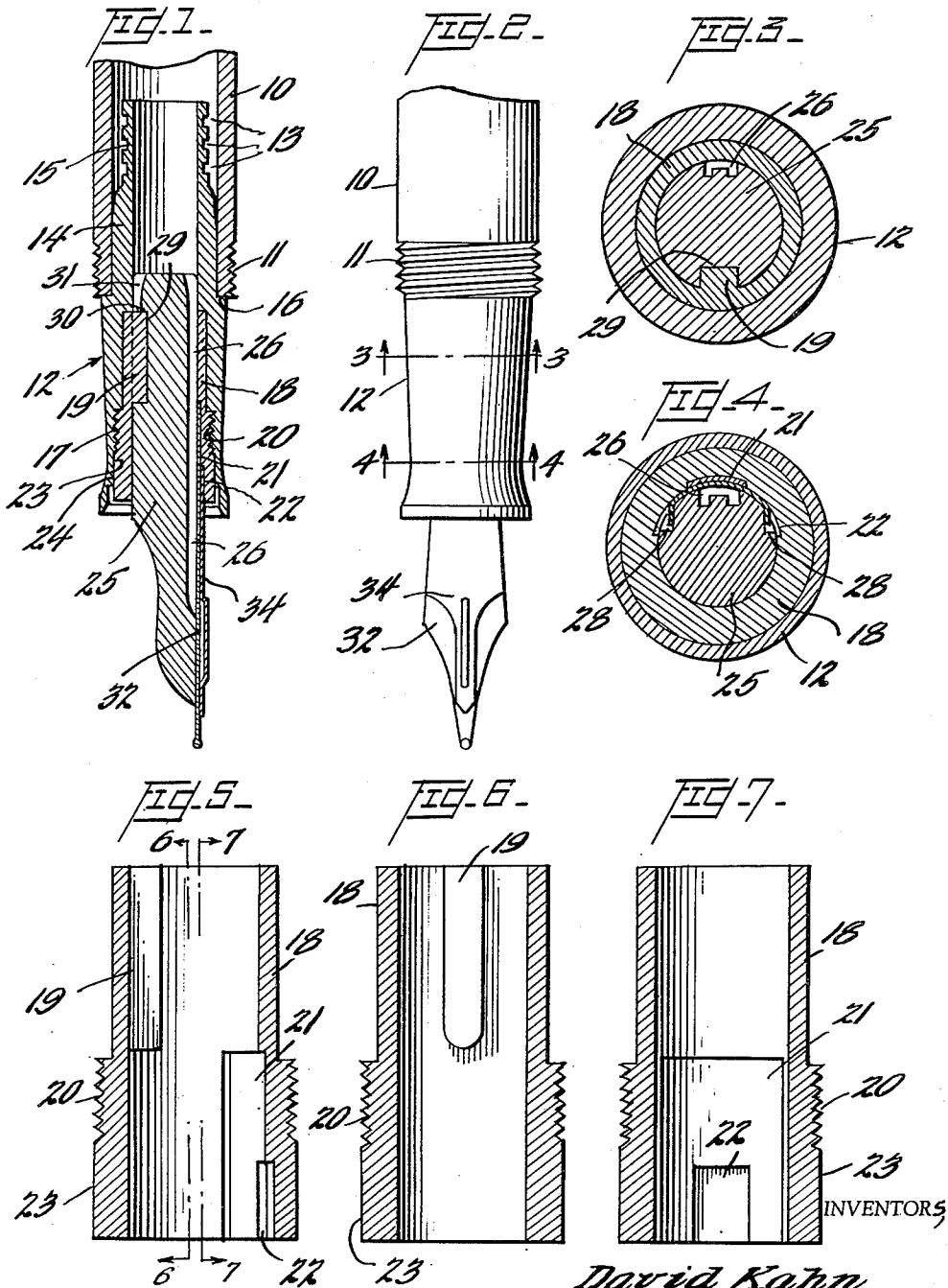
D. KAHN ET AL

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LOCKING DEVICE FOR FOUNTAIN PEN

Filed July 6, 1954

2 Sheets-Sheet 1



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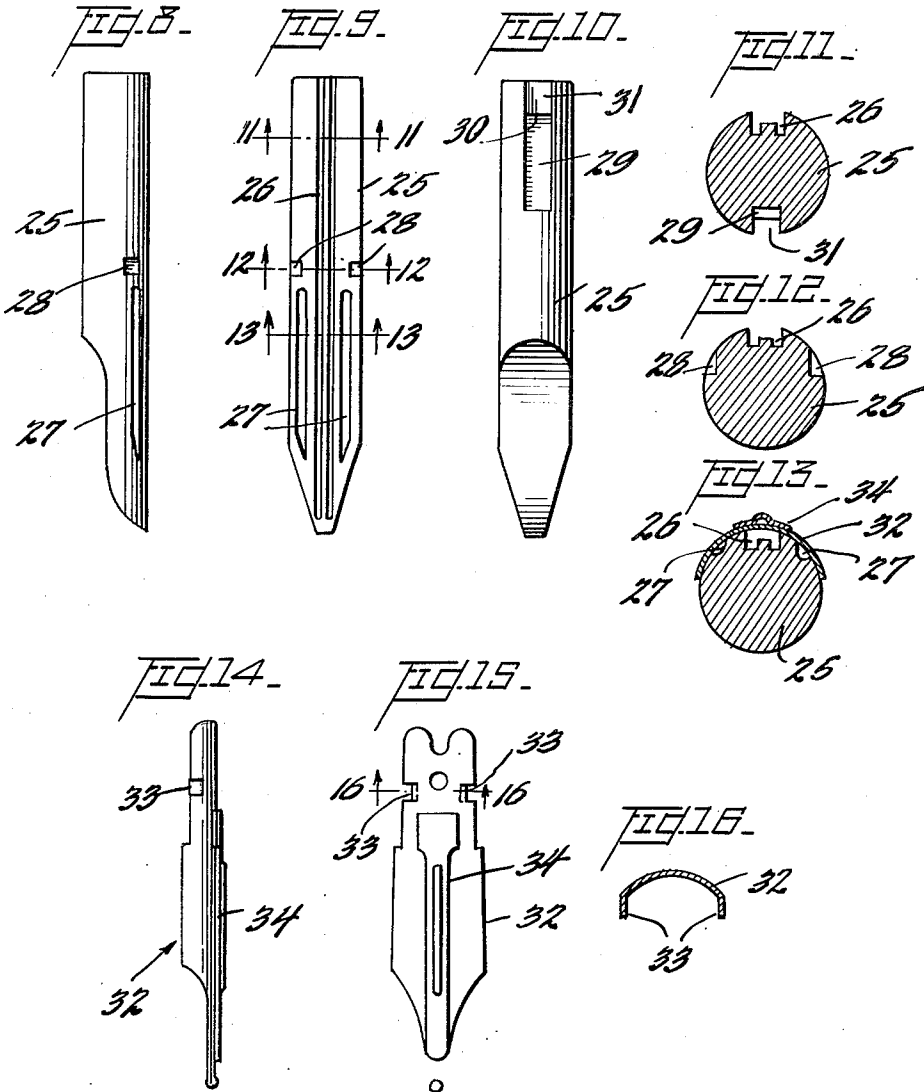
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LOCKING DEVICE FOR FOUNTAIN PEN

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11 Claims. (Cl. 120—50)

This invention relates to a fountain pen, and more particularly to a locking assembly for holding the pen point and feed bar in their proper positions in the pen.

The object of the invention is to provide a locking assembly which will insure that the pen point and feed bar remain locked in their proper positions in the fountain pen even though the pen may be subjected to temperature or climatic changes or variations or even though the pen point may be manually twisted or pulled.

Another object of the invention is to provide a locking device for fountain pens having an interchangeable pen point and feed bar wherein the pen point, pen guard and feed bar are rigidly locked in a bushing made of a suitable material such as a plastic and wherein the bushing is adapted to be molded on the pen point, feed bar and guard so that in the event the pen point is to be replaced or changed, it is only necessary to unscrew the bushing from a support member or sleeve and then insert the desired bushing having the feed bar and pen point therein.

Another object of the invention is to provide a fountain pen which includes an interchangeable unit that includes a bushing which is adapted to be threadedly connected to a sleeve or support member which remains secured to the barrel of the pen, the bushing being permanently secured as by molding to a feed bar, pen point and pen guard, there being inter-engaging means on the bushing, feed bar and pen point to insure that these parts remain connected together as a unitary assembly so that they can all be replaced as a unit when desired.

Another object of the invention is to provide an interchangeable pen point and feed bar which will not accidentally separate after they have been assembled, there being a bushing which has recesses for receiving therein a portion of the pen point and pen guard so that these parts will not accidentally shift relatively to each other, the pen point having tongues or prongs which fit in recesses in the feed bar and the feed bar having a cut-out or recess for receiving a tongue that projects from the bushing so that a positive lock is provided between the parts and wherein rotary or longitudinal displacement of the feed bar with respect to the bushing is prevented.

A further object of the invention is to provide a locking assembly for an interchangeable pen point and feed bar of a fountain pen which is extremely simple and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Fig. 1 is a fragmentary longitudinal sectional view of the assembled pen showing the pen point and feed bar therein;

Fig. 2 is a fragmentary elevational view of the fountain pen and taken at right angles to the view in Fig. 1;

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

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2; Fig. 5 is an enlarged longitudinal sectional view of the bushing;

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 5;

Fig. 8 is an elevational view of the feed bar;

Fig. 9 is an elevational view of the feed bar and taken at right angles to the view in Fig. 8;

Fig. 10 is an elevational view showing the back of the feed bar;

Fig. 11 is a sectional view taken on line 11—11 of Fig. 9;

Fig. 12 is a sectional view taken on line 12—12 of Fig. 9;

Fig. 13 is a sectional view taken on line 13—13 of Fig. 9 and showing the pen point and pen guard attached to the feed bar;

Fig. 14 is an elevational view of the pen point;

Fig. 15 is an elevational view of the pen point and taken at right angles to the view in Fig. 14; and

Fig. 16 is a sectional view taken on line 16—16 of Fig. 15.

Referring in detail to the drawings, the numeral 10 designates a portion of a fountain pen barrel which may be made of any suitable material such as plastic, Figs. 1 and 2, and the barrel 10 includes an exteriorly threaded end portion 11 which is adapted to be engaged by the cap when the fountain pen is not being used. Projecting into the lower open end of the barrel 10 is a sleeve or support member 12 which includes a reduced diameter portion 14 which snugly fits within the end of the barrel 10. The sleeve 12 further includes an inner neck portion 15 which is adapted to be engaged by the usual ink or fluid holding sac in order to supply ink to the pen point assembly. Grooves 13 may be provided in the outer surface of the neck portion 15 to help maintain the ink sac connected to the neck 15. The reduced diameter portion 14 of the sleeve 12 defines an annular shoulder 16 which abuts the adjacent end of the barrel 10, Fig. 1, and the sleeve 12 is further provided with an inner threaded portion 17 for a purpose to be later described.

Detachably connected to the sleeve 12 is a tubular bushing 18 which is adapted to be made of any suitable material such as a plastic. The bushing 18 includes a continuous annular side wall which has a tongue 19 projecting inwardly therefrom or formed integral therewith, and the tongue 19 is arranged adjacent the rear end of the bushing 18. The tongue 19 extends from the rear end of the bushing 18 to a point substantially intermediate the ends of the bushing as shown in Fig. 6.

The bushing 18 is shown in detail in Figs. 5, 6 and 7 and includes an exteriorly threaded portion 20 which threadedly engages in the inner threaded portion 17 of the sleeve 12. Thus, when the feed assembly is to be removed from the pen, the bushing which has the feed bar, pen point and pen guard rigidly secured therein, can be unscrewed from the sleeve 12 and replaced as desired. The front end of the bushing 18 is provided in its inner surface with a recess 21 which extends partially around the inner surface of the side wall of the bushing, Fig. 7. Also arranged in the front end of the bushing 18 is a cut-out 22 which communicates with the recess 21 for a purpose to be later described. The bushing 18 also has an enlarged cylindrical portion 23 on its front end for snugly seating within an annular groove 24 which is formed in the inner surface of the sleeve 12.

There is further provided a feed bar which is indicated generally by the numeral 25, and the feed bar is shown in detail in Figs. 8, 9 and 10 of the drawings. The feed bar 25 can be made of any suitable material and includes an elongated or longitudinally extending channel 26 which

3

serves to feed ink to the pen point. Arranged on opposite sides of the ink feeding channel 26 are capillary passages 27. The feed bar 25 further includes a plurality of indentations or recesses 28 which are adapted to receive therein prongs or tabs which extend from the pen point whereby the pen point and feed bar will be securely locked together.

Arranged adjacent the rear end of the feed bar 25 is a socket or recess 29 which serves to receive snugly therein the tongue 19 of bushing 18. Thus, the tongue 19 fits in the socket or recess 29 so as to provide a positive fit between the bushing and the feed bar when the parts are assembled. The socket 29 is spaced from the rear end of the feed bar and defines a shoulder 30 which is abutted by the rear end of the tongue 19. A cut-out 31 is provided in the rear end of the feed bar 25, and the cut-out 31 is formed during the molding of the feed bar in order to facilitate the fabrication of the parts. As can be seen, the socket 29 is defined by an uninterrupted periphery so that once the tongue 19 is seated within the socket 29, the sliding removal of the feed bar 25 from within the bushing 18 is prevented by engagement of the tongue with the said periphery.

In Figs. 14, 15 and 16 of the drawings there is shown the pen point which is indicated generally by the numeral 32. The pen point 32 includes a plurality of struck-out prongs or tabs 33 which fit in the indentations 28 in the feed bar 25 so as to prevent relative displacement of the pen point and feed bar one with respect to the other. The pen point 32 also includes a pen guard 34, Fig. 15, and the previously described cut-out 22 snugly receives therein the pen guard 34 while the recess 21 in the bushing 18 snugly receives therein the rear portion of the pen point 32.

In use, the pen point 32 having the pen guard 34 thereon is initially positioned on the feed bar 25 so that the prongs 33 fit in the indentations 28 in the feed bar whereby the pen point and feed bar remain connected together. Then, the bushing 18 is molded out of a suitable plastic onto the inter-connected feed bar and pen point so that the pen point 32 snugly seats in the recess 21 while the pen guard 34 seats in the cut-out 22. At the same time the tongue 19 snugly projects into the socket 29 of the feed bar 25 whereby there is provided a unitary assembly that consists of the bushing 18, feed bar 25, pen point 32 and pen guard 34. These parts all remain positively connected together regardless of temperature or climatic variations even though strains or stresses may be placed on the parts individually. Then, to use this unitary assembly it is only necessary to screw the bushing 18 into the sleeve 12, as shown in Figs. 1 and 2, and the threaded portion 20 on the bushing 18 will engage the interiorly threaded portion 17 of the sleeve 12 whereby the said assembly will be detachably connected to the sleeve. The sleeve 12 is secured in place in the barrel 10 by means of a snug or push fit.

From the foregoing it is apparent that there has been provided an interchangeable feed assembly for a fountain pen which is a unitary structure that includes the bushing 18, feed bar 25, pen point 32 and pen guard 34. These parts are all positively connected together and are in fact replaced in the fountain pen as a unit in the event that the pen point becomes damaged or in the event that a different pen point is to be inserted in the pen. By means of the previously described interengaging means between the bushing, feed bar, pen point and pen guard, it will not be possible for any of these parts to accidentally shift out of their proper aligned position, and the sleeve 12 remains attached to the barrel 10. The pen guard or pen hood 34 may be rigidly secured to the pen point 32. After the parts of the interchangeable feed have been properly assembled they cannot be taken apart since the bushing 18 is molded thereon.

Heretofore in the manufacture of fountain pens it has been difficult to provide a positive fit between the various

4

parts of the pen point feed but with the present invention a positive connection or fit is assured even though the fountain pen may be used alternately in hot or cold climates. Furthermore, the pen point and other parts of the unitary feed will not accidentally move out of their proper position even though pressure be exerted thereon, and the prongs 33 on the pen point 32 fit into the indentations 28 in the feed bar 25 to prevent the pen point from slipping out.

The sleeve 12 snugly fits in the barrel 10 and receives the bushing 18. The bushing 18 as well as certain other parts of the fountain pen can be injection molded from a suitable thermoplastic, and the sleeve 12 and feed bar 25 can also be made of a suitable plastic.

The feed bar 25 is prevented from turning due to the interengagement of the tongue 19 in the socket 29. And in fact when the feed bar 25 is in its assembled position, as shown in Fig. 1, it is locked therein so that it cannot accidentally move either left to right or forward or backward.

We claim:

1. In a unitary interchangeable ink-feed assembly comprising a hollow tubular bushing and a feed bar extending longitudinally through said bushing and fitted within the same, the improvement which comprises a bushing provided with an inwardly extending integral tongue and a feed bar provided with an inwardly extending socket defined by an uninterrupted periphery positioned intermediate of the length thereof for receiving said tongue whereby removal of said feed bar from within said bushing is prevented by interengagement of said tongue with the periphery of said socket.

2. A unitary interchangeable ink-feed assembly as recited in claim 1 in which said socket comprises a longitudinally extending groove spaced from the rear end of the feed bar and said tongue fits immovably within said socket.

3. A unitary interchangeable in-feed assembly as recited in claim 2 in which said groove is spaced from the rear end of the feed bar by means of a shoulder.

4. A unitary interchangeable ink-feed assembly as recited in claim 2 in which said groove has outwardly extending longitudinal side walls.

5. A unitary interchangeable ink-feed assembly as recited in claim 2 in which said groove is spaced from the rear end of the feed bar by means of a shoulder the upper portion of which is spaced from the outer periphery of said feed bar to facilitate engagement of said socket with said tongue.

6. A unitary interchangeable ink-feed assembly as recited in claim 5 in which said shoulder is connected to the rear face of said feed bar by means of an inwardly tapered cut-out.

7. In a fountain pen, a barrel provided with a lower open end, a hollow open-ended sleeve projecting into the open end of said barrel, a bushing positioned within said sleeve and detachably connected thereto, a feed bar extending longitudinally through said bushing, interengaging means locking said bushing to said feed bar and preventing removal of said feed bar from said bushing, said interengaging means being positioned on the mating surfaces of said feed bar and said bushing, and comprising a socket defined by an uninterrupted periphery and a tongue projecting into said socket and interengaging with said periphery and a pen point interposed between said bushing and said feed bar.

8. In a fountain pen, a barrel provided with a lower open end, a hollow open-ended sleeve projecting into the open end of said barrel, a bushing positioned within said sleeve and detachably connected thereto, said bushing having a tongue extending inwardly from the interior thereof, a feed bar extending longitudinally through said bushing and provided with a socket defined by an uninterrupted periphery, said tongue projecting into said socket and interengaging with said periphery to prevent the sliding re-

5

removal of said feed bar from within said bushing and a pen point interposed between said bushing and said feed bar.

9. A fountain pen as recited in claim 8 in which said pen point is fixedly mounted with respect to said feed bar and said bushing is provided with a recess at the interior of the forward thereof for receiving the rear of said pen point.

10. A fountain pen as recited in claim 8 in which said tongue and said socket extend longitudinally of said bushing and feed bar respectively.

11. In a unitary interchangeable ink-feed assembly comprising a hollow tubular bushing, a pen point and a feed bar extending longitudinally through said bushing and fitted within the same, the improvement which comprises a bushing provided with an inwardly extending integral tongue and a feed bar provided with an inwardly extending socket defined by an uninterrupted periphery, said socket being positioned intermediate the length of said feed bar and being dimensioned to receive said tongue whereby removal of said feed bar from within said bushing is prevented by interengagement of said tongue with the periphery of said socket, interengaging means fixedly posi-

tioning said pen point with respect to said feed bar and said bushing being provided with a recess at the interior of the forward end thereof for receiving the rear of said pen point.

6

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