

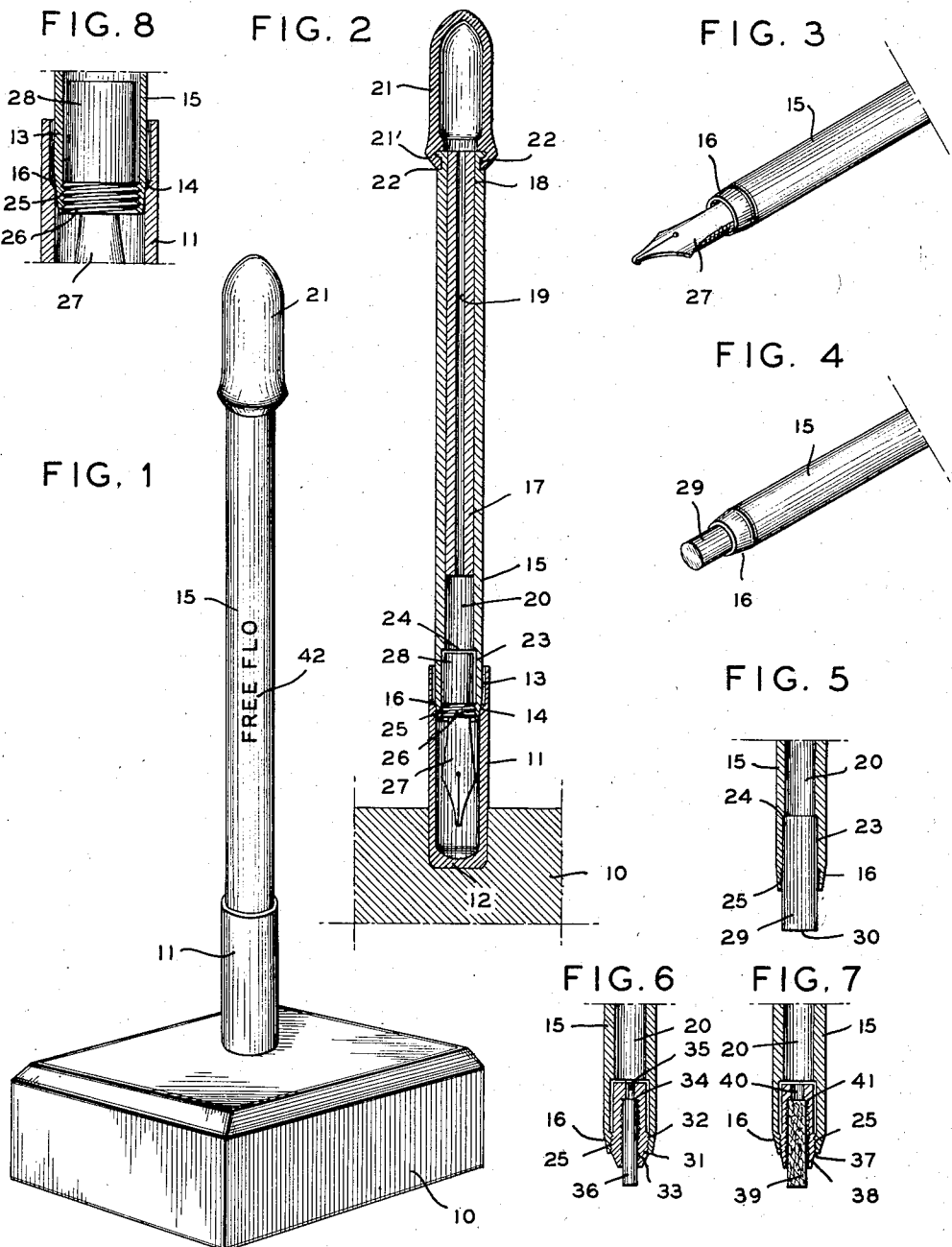
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WRITING OR DRAWING INSTRUMENT

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WRITING OR DRAWING INSTRUMENT

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The present invention relates to writing and marking implements and more particularly to a fountain type of writing implement for use with relatively heavy writing fluids such as India ink. This application is a continuation in part of my application Serial Number 416,755, filed March 17, 1954, and now abandoned.

Heretofore, various types of writing implements have been used with varying degrees of satisfaction and the fountain type of implement has been regarded as particularly advantageous because of the reduction in time necessary to add writing fluid or ink to the writing unit or nib. Because of the difficulty of cleaning fountain type writing implements, many draftsmen and artists have continued to use the straight pen with the continual need for stopping to apply ink to the writing nib thereof. Further, the usual type of fountain writing implement has been unsatisfactory because the heat absorbed by the barrel or handle of such implements from the warm hand of the user causes expansion of air and writing fluid within the barrel causing the formation of large drops on the writing unit or nib. Such drops frequently fall on the drawing with the attendant loss of time to remove such blots, and frequently the loss of the drawing or show-card. To provide for drawing lines of different widths the draftsman or artist has required a large number of separate writing or drawing implements making the expense of equipment so great as to reduce the possibility of reasonable profits.

An object of the present invention is to overcome the difficulties of the prior art and to provide a writing implement which is simple in construction and foolproof in operation so that uniformly good results may be obtained even by inexperienced personnel.

Another object of the invention is to provide a writing implement handle with insulation to prevent "leakage" or dripping of writing fluid from the writing unit.

Another object of the invention is to provide a writing unit which may be readily cleaned even though the writing fluid becomes caked therein.

A further object is to provide a writing unit with limited ink capacity and means to prevent air from contacting the ink while the writing implement is in use or while it is stored.

A still further object is to provide adapters to accommodate different sizes of writing units.

Another object of the invention is to provide a writing implement which is adapted to receive a conventional writing pen or a relatively solid writing unit over which the writing fluid passes so that a single holder may serve with many different writing units.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a perspective view of a writing implement supported in a socket which socket is maintained in upright position by a base separable therefrom;

Fig. 2, a longitudinal section of the writing implement

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in its storage socket with a fragmentary portion of the base;

Fig. 3, a fragment of a portion of the implement with the pen mounted therein;

Fig. 4, a fragment of the implement with a felt-like writing unit therein;

Fig. 5, a fragmentary longitudinal section of the writing implement of Fig. 4;

Fig. 6, a fragmentary section of a reduced felt-like writing unit in a suitable adapter;

Fig. 7, a fragmentary section of a felt-like writing unit in a different size of adapter; and,

Fig. 8, an enlarged fragmentary, longitudinal, sectional view of the lower end of the writing implement in the holder showing the line contact of the shoulder of the holder with the lower tapered end of the writing implement to provide a substantially airtight seal.

Briefly stated, the present invention comprises an elongated barrel of sufficient length for convenient retention in a person's hand with a writing unit mounted within an interiorly threaded end of the barrel, the barrel providing an ink receiving reservoir adjacent the writing unit. A tube of insulating material mounted within the barrel above the ink receiving chamber extends to the other end of the barrel, at which other end of the barrel a resilient bulb is mounted, the bulb serving to draw the ink into the chamber with the effective change in capacity of the bulb being not greater than the capacity of the ink receiving chamber, thereby avoiding drawing ink into the passage of the insulating material or into the bulb. Alternatively, the writing unit may be a conventional pen such as that used in fountain pens or the like or the writing unit may be of felt-like material received in the barrel, the barrel being provided with a shoulder to limit the amount of insertion of the felt-like writing unit. The threads in the barrel serve to uniformly apply a writing fluid to the outer surface of the felt-like writing unit. One or more adapters are provided for accommodating writing units of different sizes to produce lines of different widths and a vertically extending holder closed at the bottom is adapted to receive the writing end of the implement and seal the writing unit thereof from the air to prevent caking of the writing fluid, a separable base maintaining the holder in proper position to support the implement in easily accessible position without danger of ink caking in the implement.

Referring more particularly to the drawing, a base 10 of suitable material such as wood or like material removably receives a holder or socket 11 in a bore of proper size so that the socket may be inserted or removed at will, said socket being formed of tubular material with a closed bottom 12 and having an enlarged bore 13, whereby a shoulder 14 is formed by the difference in bores. A tube-like barrel 15 of aluminum or other suitable material is tapered at its lower end 16 for engagement with the shoulder 14 to provide a relatively airtight seal when the barrel is positioned within the holder 11 as shown in Figs. 1 and 2.

Within the tube 15 a tubular insert 17 of insulating material is mounted and secured in position by suitable means such as glue 18 or the like, such tubular insert having a relatively small passage 19 extending there-through, the lower end of the tubular insert 17 terminating in spaced relation from the lower end of the tube-like barrel 15 to provide an ink supply chamber 20. The upper end of the tubular insert of insulating material extends substantially to the upper end of the tube-like barrel 15 and a resilient bulb 21 of a type similar to that used in eye-droppers is mounted with its inwardly extending flange 21' in a groove 22 at the upper end of

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the barrel, the normal useful capacity of the bulb 21 being less than the capacity of the ink receiving chamber 20 so that ink is not drawn into the passage 19 in normal use of the writing implement.

The lower end of the barrel 15 is provided with an enlarged bore 23 whereby a shoulder 24 is formed while the interior of the lower extremity of the barrel is provided with internal threads 25 which receive the threaded portion 26 of a writing unit having a penpoint 27 and a shank 28 is threaded into threads 25 extending into the bore 23 thereby confining the lower end of the ink chamber 20.

Although the precise dimensions may be varied, the insulating tubular insert 17 may be approximately three and one-half inches long with an outside diameter of .244 inch and an inside diameter of .09375 inch. An insulating and hygroscopic fibrous material serves well as the insert since it may be applied within an aluminum barrel of approximately .25 inch inside diameter and then may expand due to the slight amount of moisture in the writing fluid, thereby additionally maintaining the insert in position.

Upon reference to Figs. 4 and 5, the tubular barrel has a writing unit of relatively dense felt-like material 29 mounted therein with the upper end of the unit engaging the shoulder 24 thereby limiting the extent of insertion and assuring that the writing unit projects from the barrel. The writing fluid may pass around the outside of the felt-like writing unit 29 and into the threads 25 which threads 25 serve to conduct writing fluid around the entire periphery of the writing unit 29 thereby assuring a uniform supply of writing fluid to the exterior surface and to the outer end 30 thereof whereby the writing unit may be used substantially continuously.

With reference to Fig. 6 an adapter 31 provided with screw threads 32 is threadedly secured in a fluid-tight manner within the barrel 15, such adapter including an interiorly threaded bore 33 having a shoulder 34 at its upper end with a passage 35 for conducting writing fluid from the chamber 20 to a writing unit 36 which is retained within the threaded bore 33. Similarly, a different size of adapter 37 is threaded into the threads 25 and is provided with an interiorly threaded bore 38 which retains an intermediate size felt-like writing unit 39 while a passage 40 provides communication between the ink retaining chamber 20 and the bore 38 to assure the continuous supply of writing fluid to the writing unit 39, the passage 40 being somewhat smaller than the bore 38 and providing a shoulder 41 against which the writing unit 39 abuts.

It will be apparent that the writing implement of the present invention may be used with relatively heavy inks such as India ink, the implement being filled by dipping the point into writing fluid so that the level of the writing fluid is somewhat above the bottom of the barrel 15 and upon pressing the bulb 21 once or twice and allowing the bulb to expand, the ink is drawn into the chamber 20 from which it is fed to the writing implement whether the writing implement is a pen point 27 or the felt-like writing unit 29. When the writing implement is held in the hand the contact with the hand tends to heat the barrel 15 but the insulation provided by the insert 19 reduces the flow of heat to such an extent that the ink is used more rapidly than the expansion of the air and writing fluid within the writing implement.

Further, the small bore 19 in the insulating unit has such a small volume that the change of temperature of gas therein produces such a small change in volume that liquid is not forced from the writing unit, and therefore no leakage occurs. Further, the writing fluid is maintained in the chamber 20 at all times since there is no tendency for the ink to pass into the passage 19 even though the writing implement is inverted since the size of the passage 19 is so small.

The insulating insert 17 may be retained in position by

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slightly deforming the barrel 15. One method of deforming the barrel is by applying pressure to one side thereof. This may be done by die stamping a suitable trade name 42 such as the words "Free-Flo" thereby permanently deforming the barrel a sufficient amount to retain the insulating insert 17 in position thereby avoiding the necessity of using glue and the like. It will be apparent that the deformation could be accomplished by other methods, if desired.

The implement may be readily disassembled for cleaning as desired and the implement may be stored in the holder 11 with practically no danger of the ink caking because of the relatively fluid-tight seal made by the tapered end 16 of the barrel 15 with the shoulder 14 in the holder of socket 11.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawings and described in the specification but only as indicated in the accompanying claims.

What is claimed is:

1. A fountain type writing implement comprising an elongated body of a length to extend completely through the hand in writing position, said body having a continuous passage from one end to the other open only at said one end and said other end, said passage including an enlarged writing element receiving portion at said one end, a short length removable writing element having a shank portion received in said writing element receiving portion of said passage, said passage including a writing fluid receiving chamber formed in the body closely adjacent said one end and abutting said writing element receiving portion and being of generally circular section of smaller transverse dimension than said enlarged writing element receiving portion, said writing fluid receiving chamber occupying a short length of said body for retaining a limited quantity of writing fluid, an exposed resilient hollow bulb mounted on said other end for producing suction at said other end of said body and completely closing said other end of said passage and communicating with said passage and otherwise being closed to the atmosphere, the portion of said passage in said body from said writing fluid receiving chamber to said suction producing bulb being a major portion of the length of said implement and said portion of the passage being filled with an insulating insert completely filling the said major portion of said passage, said insert having an extremely small bore providing communication between said suction producing bulb and said writing fluid receiving chamber, said suction producing bulb being of relative size and capacity with respect to said writing fluid receiving chamber when a writing element is in place so that writing fluid drawn into said chamber by said suction producing bulb will be retained in said chamber and will not be drawn appreciably into said extremely small bore so that said extremely small bore will be substantially free of writing fluid whereby the writing fluid and air within the writing implement will not be sufficiently affected by the heat of the hand to cause pressure build up on the writing fluid within said body to result in discharge of writing fluid in excess of writing requirement thereby avoiding blotting, said structure providing for ease of cleaning of the writing fluid receiving chamber.

2. The invention according to claim 1 in which the writing element is a pen.

3. The invention according to claim 1 in which a shoulder is provided between the writing element receiving portion of the passage and the writing fluid receiving chamber and the writing element is a felt nib and the shank thereof abuts the shoulder.

4. The invention according to claim 3 in which the body is provided with internal threads in the said one end of said passage for providing a passage for non-soluble pigmented writing fluids around the felt nib so as to feed

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writing fluid at a sufficient rate for continuous writing or drawing.

5. The invention according to claim 1 in which the body is provided with internal threads in the said one end of said passage providing means for retaining the shank portion of the removable writing element.

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