

March 4, 1941.

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2,233,942

FOUNTAIN PEN FILLING ADAPTER

Filed Feb. 14, 1940

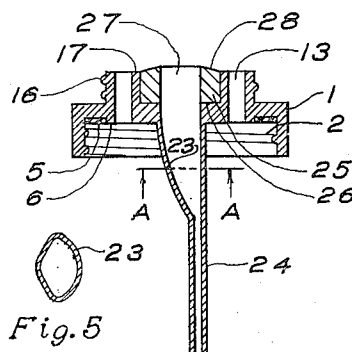
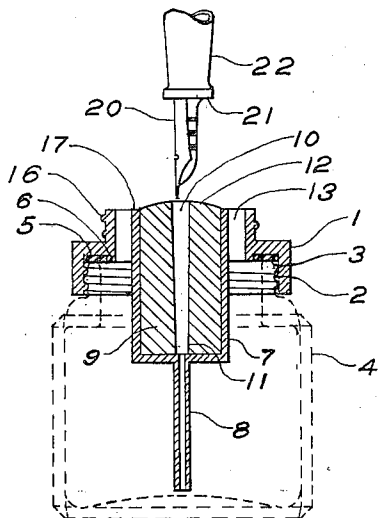
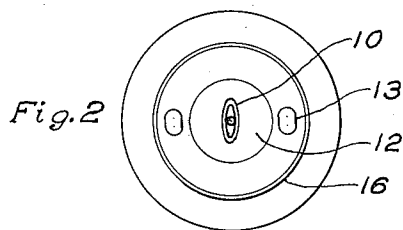
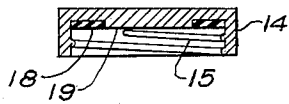


Fig. 5

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2,233,942

FOUNTAIN PEN FILLING ADAPTER

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Application February 14, 1940, Serial No. 318,875

7 Claims. (Cl. 120-4)

This invention relates to adapters for filling fountain pens and has for an object to provide an adapter which can be applied to the opening of an ordinary commercial bottle of ink.

Another object of the invention is to provide an adapter which will facilitate the filling of a fountain pen without danger of soiling the barrel parts with the writing fluid.

A further object of the invention is to provide an adapter which allows only the pen point to come into contact with the writing fluid.

With the foregoing and other objects in view, the invention consists in general of certain details of construction hereinafter more fully described, illustrated in the accompanying drawing, and specifically claimed.

In the accompanying drawing, wherein like characters refer to like or corresponding parts throughout the several views, Figure 1 is a vertical sectional view of the adapter embodying the invention, applied to the opening of a commercial bottle of ink; Figure 2, a plan view of the top of the adapter shown in Figure 1; Figure 3, a vertical sectional view of the cap which engages the outer threaded neck of the adapter; Figure 4, a vertical sectional view of a modified form of the adapter also suited to engage the cap shown in Figure 3; and Figure 5, a section on the line A—A of Figure 4.

Referring more specifically to the drawing, 1 represents a flanged cap, threaded internally at 2 to engage the threaded neck 3 of the ink bottle 4. A gasket 5, fitting into a recess formed by the annular shoulder 6, will effect a seal at the juncture of said cap and the ink bottle 4. A central well 7, arranged in spaced relation to the flanged cap 1, is modified at the lower end to form a tube 8 of reduced diameter and so properly positioned as to make contact with the writing fluid in the bottle 4. The aforesaid central well is provided with a stopper 9 made of rubber or some other material of substantially the same elastic and compressible properties as rubber. The stopper 9 is provided with a passage 10 slightly constricted at the lower end 11, the said passage so positioned as to form an opening continuous with the opening in the tube 8. The upper exposed surface 12 of the stopper 9 is preferably rounded in form. If desired, the central well 7 may be detachably supported by the flanged cap 1. Also, the tube 8 may be detachably supported by the central well 7. One or more air passages 13 (two in the present instance) extend through the cap 1, the interior exit opening through the annular shoulder 6. The flanged

cylindrical cap 14 is threaded internally at 15 to engage to the externally threaded neck 16 of the projecting well wall 17. When the aforesaid cap is engaged to the externally threaded neck 16, the gasket 18 will effect a seal of the passages 13 while the upstanding cusp 19 will effect a seal of the passage 10. The gasket 18 is made of fairly resistant material in order that, when disengaging the cap 14, the seal of the passages 13 will be broken before the seal of the passage 10.

In operation the device embodying the invention is engaged to an ordinary commercial bottle of ink 4 by means of the flanged cap 1. With the said bottle in an upright position the fountain pen point 20 is inserted into the passage 10, the base 21 of the pen barrel 22 making contact with the surface 12 of the stopper 9. The said stopper, having elastic and compressible properties, will be somewhat distorted by the aforesaid pen point. Downward pressure upon the pen barrel 22 will effect a seal between the surface 12 and the base 21 of the pen barrel. The pen barrel 22 is filled with writing fluid by means of the mechanism supplied with the pen for such purpose. The air expelled from the pen barrel 22, preparatory to filling, is forced into the passage 10 and thence through the tube 8 into the bottle 4, finally escaping through the air passages 13. As a result of the tendency to form a partial vacuum within the pen barrel 22 during the process of filling, the external air pressure, acting upon the surface of the writing fluid in the bottle 4, forces the said writing fluid through the tube 8 into the passage 10 and thence into the pen barrel 22. The pen point 20 is removed from the passage 10. The passages 13 are effective in retaining constant air pressure within the bottle 4 during the process of filling the fountain pen. Since the barrel portion of the pen has at no time been in contact with the ink, there will be no soiling of the pen barrel with the writing fluid.

Figures 4 and 5 show a modified form of fountain pen filling adapter. The tapered central well 23 partially replaces in function the stopper 9 shown in Figure 1. The central well 23 is modified at the lower end to form a tube 24 of reduced diameter and so properly positioned as to make contact with the writing fluid in the bottle 4. The upper end of the said central well enlarges into the cylindrical neck 17. A stopper 25 made of rubber or some other material of substantially the same elastic and compressible properties as rubber rests upon the annular shoulder 26. The stopper 25 is provided with a passage 27 so shaped as to form a continuation of the cen-

tral well 23, the said central well and passage of such form as to accommodate the insertion of the fountain pen point 20. The upper exposed surface 28 of the stopper 25 is preferably rounded in form. One or more air passages 13 (two in the present instance) extend through the cap 1, the interior exit opening through the annular shoulder 6. The flanged cylindrical cap 14 functions in the same manner as that described for Figures 1 and 2.

In operation the modified form embodying the invention follows the same procedure as that described for Figures 1 and 2.

It is obvious that various changes may be made in the details of construction and design of the invention without departing from the principles thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described but to include such modifications and changes as come within the scope claimed.

I claim:

1. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to the said cap, and a stopper, provided with a longitudinal passage to accommodate the insertion of a pen point, removably occupying the said well.
2. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to the said cap and modified at the lower end to form a tube of reduced diameter, and a stopper removably occupying the aforesaid well and provided with a longitudinal passage therein to accommodate the insertion of a pen point, the said passage continuous with the aforesaid tube of reduced diameter.
3. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to the said cap and modified at the lower end to form a tube of reduced diameter, a stopper removably occupying the aforesaid well and provided with a longitudinal passage therein to accommodate the insertion of a pen point, the said passage continuous with the aforesaid tube of reduced diameter, and a normally opened air passage or passages terminating respectively on the interior and exterior surfaces of the aforesaid cap.
4. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to, and projecting above and below, the aforesaid cap, the said well modified at the lower end to form a tube of reduced diameter which, when properly positioned, makes contact with the writing fluid, a stopper, made of rubber or some

other material of substantially the same elastic and compressible properties as rubber, removably occupying the aforesaid well, the said stopper being provided with a longitudinal passage to accommodate the insertion of a pen point, the said passage being continuous with the aforesaid tube of reduced diameter, a normally opened air passage or passages terminating respectively on the interior and exterior surfaces of the aforesaid cap, and a cap in threaded engagement with the externally projecting well wall.

5. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to the said cap and tapering to form a tube of reduced diameter at the lower end, the upper portion of the said well opening into an enlarged concentrically arranged hollow cylinder, and a stopper removably occupying the said hollow cylinder and provided with a passage therein to accommodate the insertion of a pen point, the said passage being continuous with the upper portion of the aforesaid well.

6. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to the said cap and tapering to form a tube of reduced diameter at the lower end, the upper portion of the said well opening into an enlarged concentrically arranged hollow cylinder, a stopper removably occupying the said hollow cylinder and provided with a passage therein to accommodate the insertion of a pen point, the said passage being continuous with the upper portion of the aforesaid well, and a normally opened air passage or passages terminating respectively on the interior and exterior surfaces of the aforesaid cap.

7. The combination, in a fountain pen filling adapter, of a cap having a customary device to detachably engage the neck of the ink bottle, a well concentrically arranged in spaced relation to, and projecting above and below, the aforesaid cap and tapering to form a tube of reduced diameter at the lower end which, when properly positioned, makes contact with the writing fluid, the upper portion of the said well opening into an enlarged concentrically arranged hollow cylinder, a stopper, made of rubber or some other material of substantially the same elastic and compressible properties as rubber, removably occupying the said hollow cylinder, the said stopper being provided with a longitudinal passage to accommodate the insertion of a pen point, the said passage being continuous with the upper portion of the aforesaid well, a normally opened air passage or passages terminating respectively on the interior and exterior surfaces of the aforesaid cap, and a cap in threaded engagement with the externally projecting well wall.

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