

A. O. DAHLBERG.  
FOUNTAIN PEN INDICATOR.  
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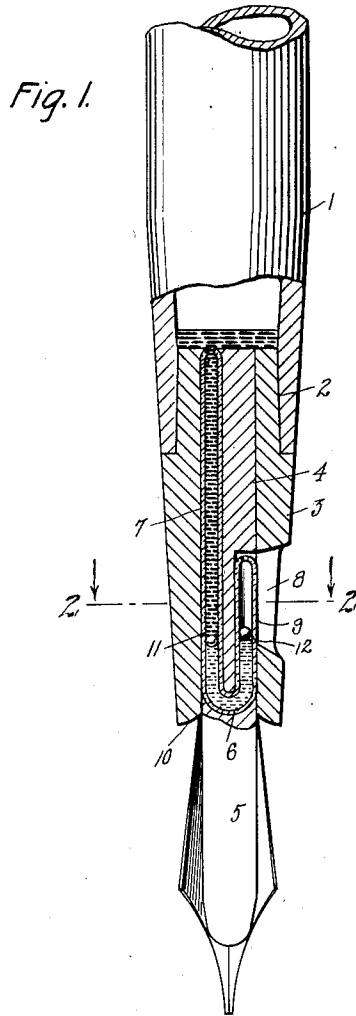
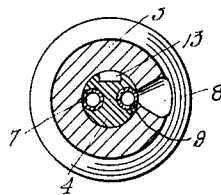


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## FOUNTAIN-PEN INDICATOR.

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Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, ARTHUR O. DAHLBERG, a citizen of the United States, and a resident of Ann Arbor, in the county of Washtenaw and State of Michigan, have invented a new and Improved Fountain-Pen Indicator, of which the following is a full, clear, and exact description.

This invention relates to an improvement in fountain pen indicators, an object of the invention being to provide a device of this type which will indicate the amount of ink contained in a fountain pen so that the user may know when the pen is running dry. With fountain pens now in use, there is no way of telling how much ink is in the pen and they very often go dry, to the great inconvenience of the user.

A further object is to provide a fountain pen indicator which may be used with practically any form of pen now on the market, one which will be simple in construction and practical in use.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a fragmentary view in longitudinal section of a fountain pen with my indicator attached, with parts of the font open and guide bar shown in section.

Fig. 2 is a view in transverse section on the line 2—2 of Fig. 1.

1 represents the font or reservoir of a fountain pen. The font 1 at its lower end receives the end of a hollow pen carrying plug 3. The guide bar 5 of the pen is made integral with a cylindrical core 4 which fits into the plug 3, as is ordinary with pens of this character.

In the core 4, a transparent U-shaped glass tube 6 is located. The longer arm 7 of the tube extends to the upper end of the core and opens into the font 1. The plug 3 is slotted at 8 to expose the shorter arm 9 of the tube 6 which is also open at its upper end. A column of mercury or other heavy liquid 10 is located in the tube 6 and metallic balls or floats 11 and 12 respectively are provided at each end of the column. The ends of the tube are reduced in diameter so that when the pen is inverted

the floats 11 and 12 will close the open ends of the tube and prevent the escape of mercury from the tube.

The surface tension of the mercury and the fact that the diameter of the balls is substantially the same as the internal diameter of the tube make it impossible for the balls to rise in the tube through the mercury when the tube is inverted.

The operation of the indicator will be readily understood. When there is no ink in the font, the column of mercury in each arm of the tube will be the same height. When the font is partially or entirely filled with ink, the ink will exert hydrostatic pressure on the mercury column, raising the mercury and float in the shorter arm of the tube. The slot 8 may be of such a length that when there is no ink in the font the float 12 will appear at the bottom of the slot and when the font is full, the float 12 will appear at the top of the slot, so that one may tell approximately how much ink is in the font by merely glancing at the position of the float 12.

Various slight changes and modifications might be made in the general form of the parts described, hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and modifications as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A fountain pen, comprising a font, a U-shaped tube in the pen communicating at one end with the font and at its other end with the atmosphere, a column of mercury in the tube, floats at each end of the column, and said pen recessed to expose the position of one of said floats.

2. A fountain pen, a transparent open ended U-shaped tube in the fountain pen, a heavy liquid in the tube, floats in the tube, and said pen having an opening therein exposing the position of one of the floats.

3. A fountain pen comprising a font, a pen carrying plug secured in the end of the font, a transparent open ended U-shaped tube in the plug, mercury in the tube, floats in the tube, said plug being recessed to expose the position of one of said floats.

4. The combination with a fountain pen comprising a font adapted to receive ink, a hollow pen carrying plug fitting into the

font and a cylindrical core in the plug, of a transparent open ended U-shaped tube located in the core, and gravity operated means in the tube for indicating the amount of ink in the font.

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5. The combination with a fountain pen comprising a font, a hollow pen carrying plug secured in the lower end of the font and a cylindrical core in the plug, of a transparent U-shaped tube located in the core, said tube comprising a relatively long arm opening at its upper end into the font and a shorter arm having an open end, mercury in the tube, a float in each arm of the tube and one of said floats adapted to indicate the amount of ink in the font.

6. The combination with a pen comprising a font, a hollow pen carrying plug secured in the lower end of the font, and a cylindrical core in the plug, of a transparent U-shaped tube located in the core, said tube comprising a relatively long arm opening at its upper end in the font and a shorter arm having an open end, heavy liquid in the tube, a float in each arm of the tube, said plug having a slot therein exposing the float

in the short arm of the tube, the hydrostatic pressure of the ink on the float of the longer arm of the tube controlling the position of the float in the shorter arm of the tube, whereby the position of said last mentioned float indicates the amount of ink in the font.

7. The combination with a fountain pen comprising a font, a hollow pen carrying plug secured in the lower end of the font and a cylindrical core in the plug, of a transparent U-shaped tube in the core having open ends, a column of mercury in the tube, a float on each end of the column, the ends of said tube being of reduced diameter so that when the pen is inverted said floats close the open ends of the tube and prevent the escape of mercury therefrom.

8. A fountain pen, comprising a font, an open ended tube in the pen communicating with the font and with the atmosphere, an indicator in the tube, said pen recessed to expose the position of the indicator, and gravity operated means controlling the position of the indicator.

ARTHUR OLAUS DAHLBERG.