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T. KOVÁCS

RESERVOIR PEN

Filed July 9, 1926

Fig.1.

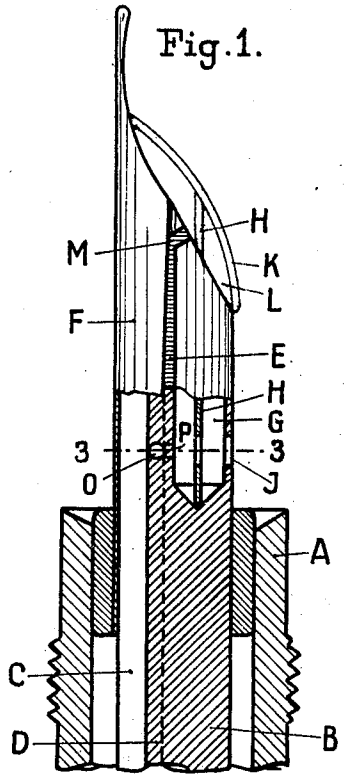


Fig.2.

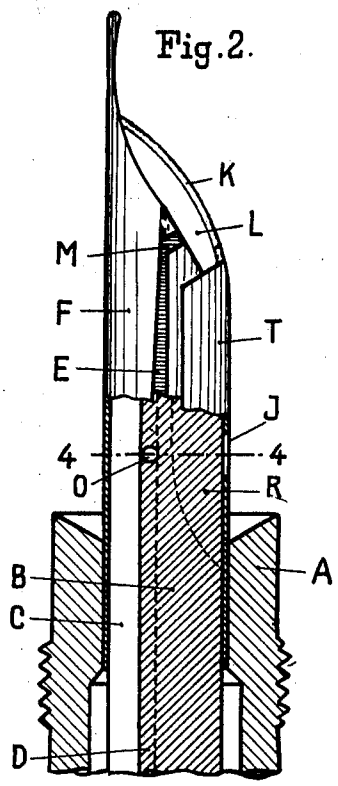


Fig.3.

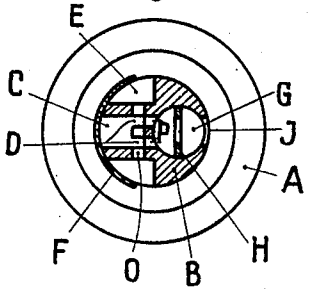
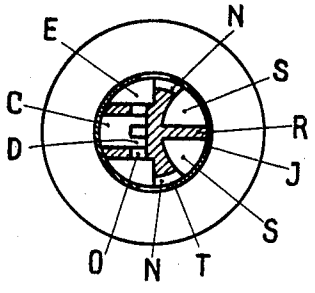


Fig.4.



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RESERVOIR PEN.

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The usual type of reservoir pen has recesses in the two sides of the feed-bar behind the nib, these recesses forming side chambers which accommodate excess ink when the pen is in use. These side chambers are not always of sufficient capacity to receive the overflow, and it is the object of this invention to provide additional accommodation for excess ink when the pen is in use.

According to the invention, the feed-bar is provided with an overflow chamber at the fore-end thereof or with a rear overflow chamber at the back of that portion of the feed-bar which projects out of the barrel of the pen or, preferably, both of these overflow chambers are employed. The overflow chambers are thus situated in positions not heretofore utilized for this purpose, although these positions are particularly suitable, being located low down when the pen is in use.

The overflow chamber at the fore-end of the feed-bar occupies the lowest position when the pen is in use and preferably extends up to the pointed end of the feed-bar, that is to say, up to the nib, so that it is, at least at its lowest point, in direct communication with the ink feed. Side passages may connect the fore-chamber with the usual side overflow chambers behind the nib. The overflow chamber at the back of the feed-bar preferably forms a continuation of the fore-chamber.

Any excess ink first of all fills the lowest spaces and then gradually rises in the fore-chamber, side chambers and rear overflow chamber. In order to permit the ink to rise in the fore and rear overflow chambers, the latter communicate with the outer air through an air aperture at least at the end nearer the holder or ink reservoir.

The overflow chambers are of sufficient cross-sectional area to enable them to return the excess ink to the nib when the pen is in use. In order to enable any ink retained in the overflow chambers when the pen is upturned to return to the ink reservoir, the rear overflow chamber and also the side overflow chambers communicate with the usual capillary ink grooves in the bottom of the longitudinal air channel in the feed-bar by apertures sufficiently small to prevent the passage of air. These apertures serve to return the ink from the overflow chambers to the reservoir when the pen is upturned. The aforesaid apertures open into the middle of the apertured surface, that is to say, they are not arranged at a corner, but in a flat wall or surface. In consequence thereof, when the pen is in the writing position, there is insufficient capillary attraction in these apertures to overcome the surface tension of the ink and therefore the ink does not escape through the apertures into the overflow chambers when writing. Moreover these apertures are so short that they do not readily clog.

The accompanying drawings illustrate two examples of my invention by way of explanation.

Fig. 1 is a part longitudinal section through the end of a reservoir pen having a retractible nib and feed-bar.

Fig. 2 is a similar view of a pen having a fixed nib and feed-bar.

Figs. 3 and 4 are cross-sectional views on the lines 3—3 and 4—4 of Figs. 1 and 2 respectively.

On the drawings, A designates the pen barrel, B the feed-bar and F the nib. The feed-bar B has the usual air channel C, in the bottom of which are formed the ordinary capillary ink grooves D. The feed-bar B also has the usual recesses or side overflow chambers E in both sides of it.

Referring now to Figs. 1 and 3, the back of the feed-bar B (remote from the nib) is provided with a broad axial chamber G open to the outer air through a lateral opening J close to the end of the chamber G nearer the ink reservoir. An apertured partition or plate H divides the chamber G into two compartments and projects beyond the inclined end face of the feed-bar, the outer end of the partition H being secured to a curved cover plate K which, with the inclined end face of the feed-bar, forms a fore-chamber L open at each side. This fore-chamber extends up to the nib F, where it is in direct communication with the ink feed. It also communicates with the side chambers E through lateral passages M. The chamber G and the side chambers E also communicate with the ink grooves D by small orifices P and O respectively, which will not allow air to pass through, but enable the ink retained in the chambers to return to the ink reservoir when the pen is upturned.

In the construction shown in Figs. 2 and 4, the back of the feed-bar B is formed with longitudinal grooves or cavities S separated from one another by a longitudinal web R

and covered by a plate T, which is curved at its fore end to form, with the inclined end face of the feed-bar B, the open-sided fore-chamber L. Near the other end, the plate T has an aperture J whereby the cavities S communicate with the outer air. The fore-chamber L communicates with the side chambers E through passages M and the cavities S communicate with the side chambers E through passages N. The side chambers E communicate in turn with the ink grooves D through small orifices O which prevent the passage of air, but permit the ink to return to the ink reservoir.

Claims—

1. A reservoir pen comprising a holder, a feed-bar adapted to project therefrom, a nib adapted to bear against one side of the outer end portion of the feed-bar, an air channel extending along the nib side of the feed-bar and having capillary ink grooves along the bottom of said channel, side chambers in said feed-bar to receive overflow ink, and an overflow chamber in that part of the projecting portion of the feed-bar away from the nib, said overflow chamber being adapted at its outer end to receive overflow ink and having an air inlet at its inner end.

2. A reservoir pen comprising a holder, a feed-bar adapted to project therefrom and having an inclined outer end, a nib adapted to bear against the longer side of the outer end portion of the feed-bar, an air channel extending along the nib side of the feed-bar and having capillary ink grooves along the bottom of said channel, side chambers in said feed-bar to receive overflow ink, and an overflow chamber formed on the inclined end of said feed-bar, said overflow chamber extending rearwardly from the nib and having an air inlet at its rear end.

3. A reservoir pen as specified in claim 2 having a longitudinal overflow chamber in the back of the projecting portion of the feed-bar, said longitudinal chamber forming a continuation of the rear end of the overflow chamber on the inclined end of the feed-bar and having an air inlet at its inner end.

4. A reservoir pen as specified in claim 1 having ink-return passages connecting the side chambers and overflow chamber with the ink grooves, said passages being so small as to prevent the passage of air.

5. A reservoir pen as specified in claim 2 having the overflow chamber formed between the inclined end of the feed-bar and a curved plate over said inclined end.

6. A reservoir pen as specified in claim 1 wherein the overflow chamber is formed by a longitudinal recess in the outer end of the feed-bar, of relatively large cross-sectional area.

7. A reservoir pen as specified in claim 2 having a longitudinal overflow chamber in the back of the projecting portion of the feed-bar, said longitudinal chamber forming a continuation of the rear end of the overflow chamber on the inclined end of the feed-bar and a covering member extending over both the end chamber and the longitudinal chamber and having an air inlet aperture at its inner end.

8. A reservoir pen comprising a holder, a feed-bar adapted to project therefrom and having an inclined outer end, a nib adapted to bear against the longer side of the outer end portion of the feed-bar, an air channel extending along the nib side of the feed-bar and having capillary ink grooves along the bottom of said channel, side chambers in said feed-bar to receive overflow ink, a covering member extending over the inclined end of the feed-bar to provide a space between the two, said space extending from the nib to a rear air inlet, and ink return passages connecting said space to the side chambers.

9. A reservoir pen comprising a holder, a feed-bar adapted to project therefrom and having an inclined outer end, a nib adapted to bear against the longer side of the outer end portion of the feed-bar, an air channel extending along the nib side of the feed-bar and having capillary ink grooves along the bottom of said channel, side chambers in said feed-bar to receive overflow ink, a longitudinal recess in the back of the projecting portion of the feed-bar and extending from the inclined end thereof, an overflow chamber formed on the inclined end of said feed-bar, an air inlet at the inner end of said longitudinal recess, and ink return passages connecting said recess with the ink grooves in the feed-bar.

10. A reservoir pen comprising a holder, a feed-bar adapted to project therefrom and having an inclined outer end, a nib adapted to bear against the longer side of the outer end portion of the feed-bar, an air channel extending along the nib side of the feed-bar and having capillary ink grooves along the bottom of said channel, side chambers in said feed-bar to receive overflow ink, a longitudinal recess in the back of the projecting portion of the feed-bar and extending from the inclined end thereof, an overflow chamber formed on the inclined end of said feed-bar, an air inlet at the inner end of said longitudinal recess, and ink return passages connecting the side chambers and longitudinal recess respectively with the ink grooves in the feed-bar, and connecting passages between the side chambers and the said overflow chamber.

The foregoing specification signed at Berlin this 18th day of June, 1926.

THEODOR KOVÁCS.