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T. KOVACS

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RESERVOIR PEN

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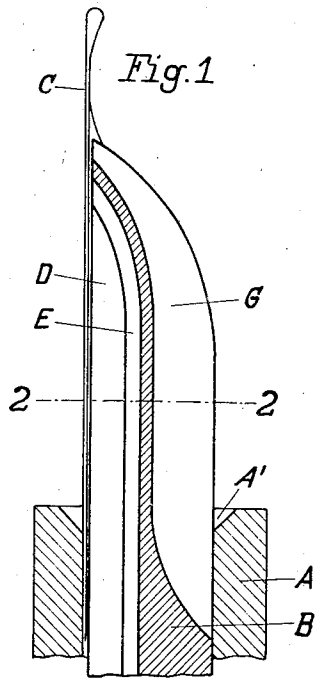


Fig. 3

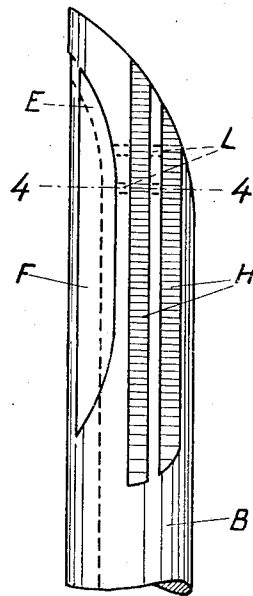


Fig. 2

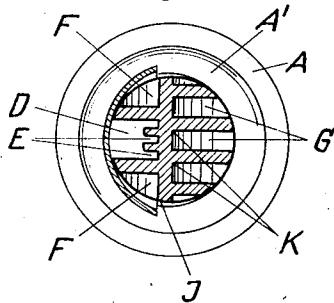
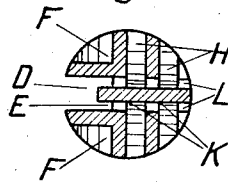


Fig. 4



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# UNITED STATES PATENT OFFICE

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## RESERVOIR PEN

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My invention relates to reservoir pens. It is an object of my invention to provide certain improvements in connection with a reservoir pen.

5 More particularly my invention relates to the feed bar of the reservoir pen. It has already been proposed to provide a feed bar in the shape of a plug arranged below the nib, and to provide chambers for the recep-  
10 tion of excess ink in the side of the feed bar which is opposite the nib. These chambers should be connected as directly as possible with the flow of ink to the pen in the vicinity of their ends which are pointing downward  
15 when writing and they should be connected as directly as possible with a passage returning the ink to the reservoir at their ends which are in downward position when the pen is held with the nib up. Besides they  
20 should have such capillary action as is required for holding the ink which has penetrated into the chambers until the ink is delivered to the point of the nib or returned to the reservoir.

25 More particularly, it is an object of my invention to fulfil these requirements by exceptionally simple means and so as to dispense with covering parts of metal as required in other cases for increasing capillary  
30 action. To this end I provide in the side of the feed bar which is remote from the nib narrow and deep grooves arranged substantially in parallel to the axis of the holder and extending along that part of the feed  
35 bar which projects from the barrel, and preferably extending for some distance back into the mouth of the barrel. The grooves are so narrow that they will retain the ink unless it is delivered to the nib or returned to the  
40 reservoir, as described.

Grooves of the type described, being closed at the bottom, exert a more intense capillary action than through slots which are open at both sides, and the ink does not dry up as  
45 readily in them as it does in open slots.

The grooves according to my invention may be arranged in parallel to the symmetry plane of the feed bar, that is, the central plane of the nib, or at right angles to such plane.  
50 With parallel arrangement they are prefer-

ably extended as far as the pointed end of the feed bar and in this manner are connected directly with the flow of ink toward the nib. If arranged at right angles to the  
55 plane of symmetry they may be connected with the capillary grooves by bores of known type and of such small area as not to allow air to pass when the bores are filled with ink.

In the drawings affixed to this specification  
60 and forming part thereof two types of feed bars embodying my invention are illustrated diagrammatically and to a magnified scale by way of example.

In the drawings

65 Fig. 1 is a sectional elevation of the front end of a feed bar with the nib inserted between the bar and the barrel.

70 Fig. 2 is a section on the line 2—2 in Fig. 1, the feed bar illustrated in these two figures having its longitudinal grooves extending in parallel to the symmetry plane,

75 Fig. 3 is an elevation of the front end of a feed bar having longitudinal grooves extending at right angles to the symmetry plane,

Fig. 4 is a section on the line 4—4 in Fig. 3.

Referring now to the drawings, and first  
80 to Figs. 1 and 2, A is the end of the barrel, which is flared at A', B is the feed bar and C is the nib. The barrel and the nib are inserted together in the opening of the barrel A. D is an air channel in the feed bar B which is covered by the nib, and E are the  
85 usual capillary grooves for conducting the ink in the bottom of the air channel. At either side of the channel D the usual side chambers F are provided. G are narrow and deep longitudinal grooves in that side of the  
90 feed bar which is remote from the nib, the grooves extending in parallel with the plane of symmetry. These grooves start within the end of the barrel A and extend through the projecting part of the feed bar B as far  
95 as the point of the feed bar where it is in contact with the nib.

Referring now to Figs. 3 and 4, identical parts are indicated by the same reference numerals as in Figs. 1 and 2. In this type of  
100 feed bar the narrow and deep longitudinal

grooves H in that part of the feed bar which is remote from the nib extend at right angles to the plane of symmetry, and transverse bores L, L which are so small as not to allow air to pass when filled with ink are provided for connecting the longitudinal grooves H, H with the ink-conducting capillary grooves E, E, as the grooves here do not extend into the immediate vicinity of the nib point.

When more ink is supplied to the nib than it can dispose of, the excess ink gradually rises toward the upper end of the grooves G or H. The upward flow of the ink is much furthered by the capillary action of the sharp angles K at the bottom of the respective grooves G and H the more so as these angles will always be kept moist on account of the depth and small width of the grooves. When the holder is held with the nib up the ink which is still in the grooves G or H flows back through the flaring inner end A' of the barrel A into the narrow interstices J which are made by inserting the nib in the barrel with the feed bar, and through these interstices to the reservoir, not shown.

The grooves G and H may be made by any suitable tool, such as a side or slot milling cutter, and in this manner the manufacture is much simplified.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to a person skilled in the art.

In the claims affixed to this specification no selection of any particular modification of the invention is intended to the exclusion of other modifications thereof and the right to subsequently make claim to any modification not covered by these claims is expressly reserved.

I claim:—

1. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, and a connection between the front end of said groove and the conduit supplying from the reservoir of said pen to the point of said nib.

2. A reservoir pen comprising a substantially cylindrical feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, and a connection between the front end of said groove and the conduit supplying from the reservoir of said pen to the point of said nib.

3. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of

said channel and a deep, narrow, longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, said groove extending substantially in parallel with respect to the axis of said reservoir pen, and partly into the barrel of said pen, and a connection between the front end of said groove and the conduit supplying from the reservoir of said pen to the point of said nib.

4. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, and a connection between said groove and said capillary groove the cross-sectional area of which is such as not to allow air to pass when filled with ink.

5. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel, and longitudinal grooves in the side remote from said nib and in that part which projects from the barrel of said reservoir pen and extending in parallel to the symmetry plane of said pen, and a connection between the front end of said groove and the conduit supplying from the reservoir of said pen to the point of said nib.

6. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, and extending as far as the front end of said bar which is in contact with said nib.

7. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen, and extending as far as the front end of said bar which is in contact with said nib and extending on the other hand into the opening of said reservoir pen.

8. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a deep, narrow longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen and extending in parallel to the symmetry plane of said pen, said groove extending as far as the front edge of said feed bar which is in contact with said nib.

9. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a deep, narrow longitudinal

groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen; a connection between the front part of said groove and the conduit supplying from the reservoir to the point of the nib, and a connection between the rear part of said groove and the inside of said pen.

10. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a deep, narrow longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen and extending in parallel to the symmetry plane of said pen, said groove extending as far as the front edge of said feed bar which is in contact with said nib, and a connection between the rear part of said groove and the inside of said pen.

11. A reservoir pen comprising a feed bar below the nib formed with an air supply channel, capillary grooves at the bottom of said channel and a deep, narrow longitudinal groove in the side remote from said nib and in that part which projects from the barrel of said reservoir pen and extending at right angles to the symmetry plane of said pen, and a connection between the front part of said groove and the conduit supplying from the reservoir to the point of the nib.

In testimony whereof I affix my signature.  
THEODOR KOVACS.

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