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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in Reservoir Writing, Drawing or Marking Instruments

We, CONWAY STEWART & CO. LIMITED, a British Company, of 196 Great Cambridge Road, Enfield, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a reservoir writing, drawing or marking instrument of the kind provided with a felt or like writing point or nib, and has for its object to provide an improved construction of instrument of this kind.

The invention consists of a reservoir writing, drawing or marking instrument comprising a barrel, a nose portion at the forward end of said barrel for holding a nib or writing point, a first compartment in the rear portion of said barrel housing an ink cartridge or refill, a second compartment in the forward portion of said barrel forming an ink reservoir communicating with said nose portion, a plug member located intermediate said first and second compartments and having a passage therethrough forming a communication between said ink cartridge or refill and said reservoir, said second compartment containing a filling of fibrous or felted ink retaining material, which filling at one end abuts said plug member and at the other end engages said nib or writing point.

In order that the invention may be more clearly understood one particular embodiment thereof will now be described, by way of example, with reference to the drawings accompanying the provisional specification and in which:—

Figure 1 is a longitudinal section of an instrument according to the invention; and

Figure 2 is a perspective view of a detail on an enlarged scale.

Referring to the drawings the instrument comprises a barrel consisting of two portions

3 and 4, a screw closure cap 5 at the rear end, and at the forward or pointed end a nose adaptor 6 and a nose piece 7 for supporting a wick-like nib or writing point 8. The rear portion 3 of the barrel forms a first compartment for housing an ink cartridge or refill 9 and the forward portion 4 of the barrel forms a second compartment constituting an ink reservoir to which ink is supplied from the ink cartridge or refill through a perforated intermediate plug member 11.

The plug member 11, illustrated in greater detail in Figure 2, has an annular head portion 12 and a rearwardly tapering shank portion 13 and has a passage therethrough formed by an axial bore 14 extending through the head and shank portion of the plug. In the wall of the bore 14 are provided a plurality of longitudinal capillary grooves 15 which are spaced circumferentially around the bore and extend through the entire length thereof. The front face of the head portion 12 of the plug is provided with a plurality of capillary grooves 16 extending radially outwards from the peripheral edge of the bore 14. The number of such radial grooves 16 correspond to the number of longitudinal grooves 15 in the bore 14 and form radial continuations of the longitudinal grooves 15.

The head portion 12 of the plug 11 is clamped between the forward end of the rear barrel portion 3 of the instrument and an annular shoulder 17 formed around the inner wall of the forward portion 4 of the barrel and is thus fixed against axial movement in the barrel.

The relative positions of the plug member 11 and the closure cap 5 and the longitudinal dimensions of the rear barrel portion 3 and the ink cartridge or refill 9 are such that when an ink cartridge 9 is placed in the barrel portion 3 and the closure cap screwed tightly into the end of the barrel portion 3 said cartridge or refill 9 is pressed forward by the

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screw cap until its nozzle end 9a is pierced by the tapered portion 14 of the plug member 11 to permit ink to flow from said cartridge or refill through the bore of the plug member into the reservoir 10 formed by the forward portion 4 of the barrel.

5 The forward portion 4 of the barrel is packed with a filling consisting of a multiplicity of substantially parallel longitudinally disposed fibres which abut the front face of the plug member 11 and which provide a strong capillary action to the flow of ink from the ink cartridge to the writing point or nib 8 of the instrument. Similarly the longitudinal and radial grooves 15 and 16 respectively in the bore 14 of the plug member 11 produce a capillary action to the flow of ink through the plug member 11 and the radial capillary grooves 16 ensure that the ink is evenly distributed over the whole cross-sectional area of the packed fibres in the reservoir 10.

25 The wick-like writing point or nib 8 is made of felt, or plastic fibres bonded with resin, or some similar material and is held either frictionally or spun or heat sealed in a central bore in the nose portion 7 and passes rearwardly through the nose adaptor 6 and abuts at its rear end against the forward end of the pack of fibres in the barrel portion 4.

30 As will be understood the nose 7, nose adaptor 6 and the portions 3 and 4 of the barrel may be fitted one within the other with a close frictional fit or said part may be connected with each other by screw threads.

35 It must be understood that the invention is not limited to the particular embodiment herein described but may be modified in various ways without departing from the scope of the invention as defined in the appended claims. For example the filling need not necessarily be composed of a multiplicity of parallel longitudinal fibres but may consist of any fibrous or felted material capable of retaining ink. Furthermore the outer barrel and nose adaptor need not necessarily consist of separate interconnected elements but could be made as a single integral moulded piece.

WHAT WE CLAIM IS:—

50 1. A reservoir writing, drawing or marking instrument comprising a barrel, a nose portion at the forward end of said barrel for holding a nib or writing point, a first compartment in the rear portion of said barrel housing an ink cartridge or refill, a second compartment in the forward portion of said barrel forming an ink reservoir communicating with said nose portion, a plug member located intermediate said first and second compartments and having a passage therethrough forming a communication between said ink

65 cartridge or refill and said reservoir, said second compartment containing a filling of fibrous or felted ink retaining material, which filling at one end abuts said plug member and at the other end engages said nib or writing point.

70 2. A reservoir writing, drawing or marking instrument according to claim 1, wherein the filling in the second compartment consists of a multiplicity of substantially parallel longitudinally disposed closely packed fibres.

75 3. A reservoir writing, drawing or marking instrument according to claim 1 or 2, wherein said plug member is fixed against axial movement in said barrel and comprises a head portion against the front face of which the packed fibres abut, a rearwardly tapered shank portion which projects into a nozzle end of said ink cartridge or refill, and an axial bore extending through said shank and head portions and forming said communication between said ink cartridge or refill and said reservoir.

80 4. A reservoir writing, drawing or marking instrument according to claim 3, wherein the wall of the axial bore of the plug member is provided with a plurality of longitudinal capillary grooves spaced circumferentially around said bore and extending through the entire length thereof.

85 5. A reservoir writing, drawing or marking instrument according to claim 4, wherein the front face of the head portion of said plug member is provided with a plurality of capillary grooves extending radially outwards from the peripheral edge of said bore in such a manner as to form radial continuations of the longitudinal groove in the wall of said bore.

90 6. A reservoir writing, drawing or marking instrument according to any one of claims 3 to 5, wherein said barrel is provided with an open rear end to permit insertion of the ink cartridge or refill and closable by a screw closure cap, the arrangement being such that when the screw closure cap is screwed tight, said cap will force the nozzle end of the ink cartridge or refill against the tapered shank portion of the plug member whereby said tapered shank portion will pierce the nozzle end of the ink cartridge or refill to permit flow of ink from said cartridge or refill through said plug member and into said reservoir.

95 7. A reservoir writing, drawing or marking instrument according to any one of the preceding claims wherein said nib or writing point consists of a wick-like element made of felt or like material, one end of which projects through the nose portion whilst the other end extends into the reservoir and abuts the pack of fibres.

8. A reservoir writing, drawing or marking instrument substantially as herein described with reference to the drawings accompanying the provisional specification.

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