

PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION

Improvements relating to Propelling Pencils

We, MENTMORE MANUFACTURING CO. LIMITED, a Company registered under the laws of Great Britain and ARTHUR EDWARD ANDREWS, a Subject of the King of Great Britain, both of Tudor Grove, Well Street, Hackney, London E.9, do hereby declare the nature of this invention to be as follows:—

This invention concerns improvements relating to propelling pencils.

In accordance with the invention, a propelling pencil is provided with a transparent barrel-section or other part which permits examination of the interior of the pencil for the purpose of ascertaining the number of leads left in a refill-magazine and/or the state of the lead in use, that is whether the magazine needs replenishment and/or whether the lead in use needs replacement.

In a pencil having a magazine near the nose or point-end of the pencil according to the invention a section of the pencil-barrel adjacent to that end is made of transparent material so that the contents of the magazine can be seen. Furthermore, an aperture is formed in the magazine and/or other parts surrounding the axially movable propelling member at the point where the barrel is transparent, and the propelling mechanism is formed or provided with an indicating means which becomes visible through the said aperture and transparent barrel-part when the lead in use has been almost completely expelled.

One manner in which the invention may be carried into effect will now be described by way of example:—

In the pencil of this example, a refill-magazine is provided in the end of the barrel which is normally closed by the nose of the pencil. This magazine may be formed between the inside of the barrel and the outside of a grooved structure surrounding the propelling mechanism. This structure may consist of a single sheet of thin metal bent to a polygonal, for instance square, cross-sectional shape in which each of the sides is recessed inwardly to form a compartment for a lead.

For the purposes of the present inven-

tion, a surrounding end-portion of the barrel is made of a transparent material such as a transparent composition or glass. In a typical instance, a section of the barrel about $\frac{1}{2}$ inch long is made of transparent material. This section may be formed at one end with a reduced externally threaded extension which is screwed into the extremity of the other section of the barrel, and may be internally threaded at the other end to receive the nose of the pencil. At this end, the cylindrical external shape of the barrel may be tapered off into the conical shape of the nose. The transparent portion is/or may be fixed to the nose and unscrewed together with the nose to give access to the magazine for the insertion or removal of leads. Due to this arrangement the leads do not have to be shaken out but can be selected or taken out with the fingers.

This transparent section permits of the state of charge of the refill-leads in the magazine being observed quickly and without the necessity for undoing or removing any part of the pencil.

Opposite to this transparent barrel-section, a longitudinal slot is cut in one of the edges between the compartments of the magazine-structure. This slot discloses a short length of the propelling mechanism. At the part of the said mechanism which comes opposite to the slot when the lead in use has been practically completely expelled, a distinctive indicator is provided on the mechanism. Thus, in a pencil wherein the propelling mechanism comprises a central axially displaceable but non-rotatable propelling rod and a rotatable sleeve held against axial movement and formed with a helical slot to be engaged by a projection from the propelling rod, the indicator may be constituted by the said projection. The latter may consist of a small red or other distinctively coloured knob or button or a shallow loop attached to the central rod and projecting through the helical slot in the sleeve (projecting through consecutive turns of the helical slot in the case of a loop). This indicator-member may be

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non-rotatably guided in one angle of the polygonal magazine-structure; namely the angle at the edge in which the slot is formed, and thus may serve to prevent or assist in preventing rotation of the central rod.

Dated this 14th day of May, 1937.

For the Applicants,
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COMPLETE SPECIFICATION

Improvements relating to Propelling Pencils

We, MENTMORE MANUFACTURING Co. LIMITED, a Company registered under the laws of Great Britain and ARTHUR EDWARD ANDREWS, a Subject of the King of Great Britain, both of Tudor Grove, Well Street, Hackney, London E.9, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention concerns improvements relating to propelling pencils.

In accordance with the invention, a propelling pencil has indicating means operatively associated with the propelling mechanism and a transparent barrel-section or other part so located that the indicating means becomes visible there-through when the lead in use needs replacement.

In a pencil having a magazine near the nose or point-end of the pencil, according to the invention a section of the pencil-barrel adjacent to that end is made of transparent material so that the contents of the magazine can be seen. Furthermore, an aperture is formed in the magazine and/or other parts surrounding the axially movable propelling member at the point where the barrel is transparent, and the propelling mechanism is formed or provided with an indicating means which becomes visible through the said aperture and transparent barrel-section when the lead in use has been almost completely expelled.

One manner in which the invention may be carried into effect will now be described by way of example and with reference to the accompanying drawing, in which:—

Fig. 1 shows a pencil partly in longitudinal section and partly in elevation,

Fig. 2 is a view, at right-angles to Fig. 1 to a larger scale.

Fig. 3 a cross-section on the line A—B in Fig. 2, and

Fig. 4 an elevation of the propelling rod of the pencil to the same scale as Figs. 2 and 3.

In the pencil of this example, a refill-

magazine is provided in the end of the opaque barrel 1 which is normally closed by the opaque nose 2 of the pencil. The magazine is formed between the inside of the barrel and the outside of a grooved structure 3 (Fig. 3) surrounding the propelling mechanism. This structure may conveniently consist of a single sheet of thin metal bent to a polygonal (as show square) cross-sectional shape in which each of the sides is recessed inwardly to form a compartment 4 for a refill-lead 5.

For the purposes of the present invention, an end-section 6 of the barrel is made of a transparent material such as a transparent composition or glass. In a typical instance, a short section of the barrel about $\frac{1}{2}$ inch long is made of transparent material. This section is formed at one end with a reduced externally threaded extension 7 which is screwed into the extremity of the main section 1 of the barrel, and is internally threaded at the other end 8 to receive the nose 2 of the pencil. At this end, the cylindrical external shape of the barrel may be tapered off at 9 into the conical shape of the nose. The transparent section 6 may be tightly fixed to the nose 2 so that it normally becomes unscrewed together with the nose to give access to the magazine for the insertion or removal of leads 5. As the magazine structure 3 projects beyond the barrel-section 1, the leads 5 do not have to be shaken out from the magazine, but can be selected or taken out with the fingers.

The transparent section 6 permits of the state of charge of the refill-leads 5 in the magazine being observed quickly and without the necessity for undoing or removing any part of the pencil.

Opposite to this transparent barrel-section 6 a longitudinal slot 10 is cut in one of the edges or crests between the compartments 4 of the magazine-structure 3. This slot discloses a short length of the propelling mechanism. At the part of the axially movable member of the said mechanism which comes opposite to the slot when the lead 11 in use has been practically completely

expelled, a distinctive indicator is provided on the mechanism. Thus in a pencil wherein the propelling mechanism comprises a central axially displaceable but non-rotatable propelling rod 12 carrying the usual spring-mounted lead-holding sleeve 13, and a rotatable sleeve 14 held against axial movement and formed with a helical slot 15 to be engaged by a projection from the said rod 12, the indicator is advantageously constituted by the said projection. The latter may consist of a small red or other distinctively coloured knob or button or a shallow loop attached to the rod and projecting through the helical slot 15 in the sleeve 14 (projecting through, say, consecutive turns of the helical slot in the case of a loop).

In the example illustrated, however, the indicator is constituted by a portion 16 of a shallow loop formed in the rod 12 itself. This loop spans two turns of the helical slot 15 and its other portion 17, which is slightly less shallow than the portion 16, propels and guides the rod 12 in non-rotatable fashion in relation to the barrel. For this purpose, it is guided in an angle 18 (Fig. 3) of the magazine-structure 3, namely that angle at the edge in which the slot 10 is formed. Any rubbing on the surface of the loop takes place on the portion 17 so that the distinctive colouring of the indicator portion 16 is not rubbed off even in the course of long use of the pencil. Figs. 1 and 2 illustrate the pencil in the condition in which the lead 11 has been practically completely used up. It will be seen that the indicator portion 16 is visible through the slot 10 and transparent barrel-section 6.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A propelling pencil having indicating means operatively associated with the propelling mechanism and a transparent barrel-section or other part so located that the indicating means becomes visible therethrough when the lead in use needs replacement.

2. A propelling pencil according to claim 1, having a magazine disposed, at least in part, internally of the trans-

parent section of the barrel so that its contents may be seen.

3. A propelling pencil according to claim 1 or 2, wherein the indicating means is formed or provided on the axially movable member of the lead-propelling mechanism and becomes visible, when the lead in use has been almost completely expelled, through an aperture formed in the magazine and/or other parts surrounding the said mechanism at a point where the barrel is transparent.

4. A propelling pencil according to claim 3, wherein the axially movable member of the lead-propelling mechanism is disposed inside a helically slotted rotatable sleeve secured against axial movement and the indicating means comprises a part projecting out through the slot from the axially movable member and guided axially outside of the sleeve in such fashion as to prevent rotation of the said member.

5. A propelling pencil according to claim 3 or 4, wherein the indicating means comprises a loop formed in or provided on the axially movable member.

6. A propelling pencil according to claim 3, 4 or 5 wherein the indicating means is guided axially at one edge of a polygonal magazine-structure.

7. A propelling pencil according to claim 5 or 6, wherein the loop comprises two portions one guided in the magazine-structure and the other, which projects somewhat less, constituting the indicating means.

8. A propelling pencil according to any one of the preceding claims, wherein the transparent barrel-section is tightly connected to the nose or point-end of the pencil so as normally to be unscrewed therewith from the rest of the barrel, the magazine projecting somewhat beyond the end of the said rest of the barrel so as to afford easy access to the leads.

9. The propelling pencil constructed, arranged and adapted for operation substantially as described and as illustrated by the accompanying drawings.

Dated this 1st day of January, 1938.

For the Applicants,
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[This Drawing is a reproduction of the Original on a reduced scale.]

