Sept. 10, 1940. M. E. TROLLEN 2,214,090

PENCIL

Filed May 4, 1940

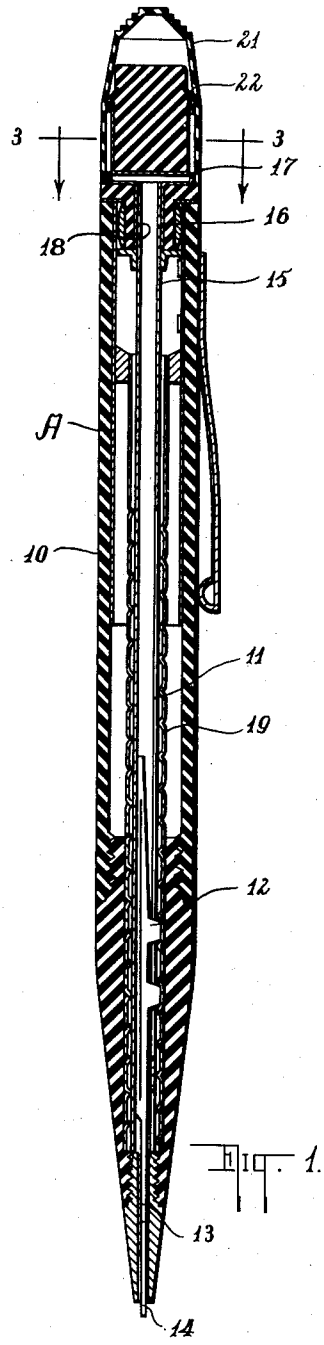

Fig. 1.

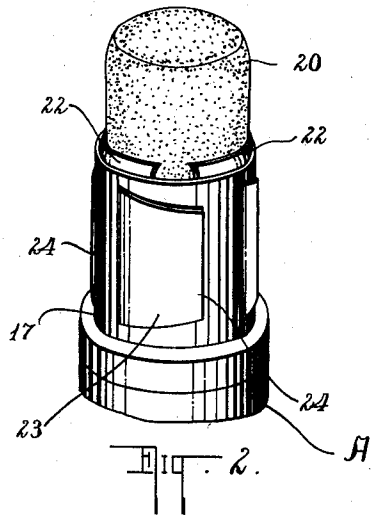

Fig. 2.

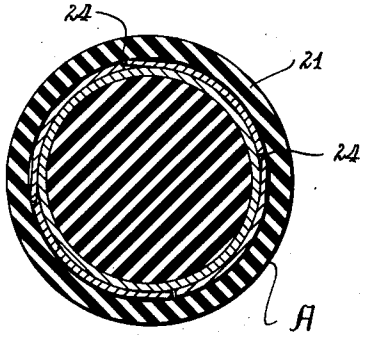

Fig. 3.

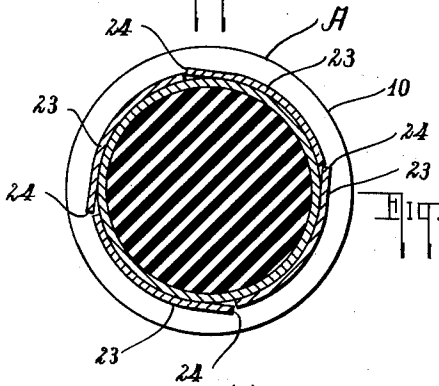

Fig. 4.

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UNITED STATES PATENT OFFICE

2,214,090

PENCIL

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6 Claims. (Cl. 120—18)

This invention relates to mechanical pencils wherein a cap is adapted to fit over the eraser and where the barrel and the cap are ordinarily made of molded plastic material.

A feature resides in providing a mechanical pencil which is formed with an operating head which is adapted to be rotated to operate the mechanism of the pencil. Where a plastic cap covers the operating head and the eraser and this plastic cap is required to engage the eraser holder or tube, it is necessary that a means of engagement be provided between the comparatively soft plastic cap and the eraser tube, so as to compensate for wear which takes place in the putting on and taking off of the cap and which at the same time will provide a gripping means between the non-metallic cap and the metallic socket for the eraser. This is particularly true because to operate the mechanism of the pencil it is necessary to rotate the head and to accomplish this the operator grips the plastic cap and twists it in a clockwise direction which drives the operating mechanism of the pencil forward to propel the lead out of the writing end of the pencil.

This invention provides a gripping means which has a tendency to increase the force between the plastic or non-metallic cap and the socket which holds the eraser. At the same time this means which has an increasing gripping force with the cap, acts to provide a resilient compensating frictional engagement with the inside of the operating non-metallic cap.

The features and objects will be more clearly and fully defined throughout the specification and claims.

In the drawing forming a part of this specification:

Figure 1 is a longitudinal section through my pencil showing the operating parts of the same.

Figure 2 is an enlarged detail of the eraser or operating end of the pencil.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a similar section to Figure 3, excepting in Figure 4 the cap which covers the eraser has been removed.

The pencil A is formed with a plastic or non-metallic barrel 10 which is adapted to inclose the operating mechanism 11 which consists of a lead pusher 12 having an operating end 13 which bears against the rear end of the writing lead 14. The pusher 12 is adapted to be operated by rotating the slotted center tube 15 which is anchored at 16 to the eraser socket 17. The eraser socket 17 is formed of metal and is provided with an extending sleeve portion 18 which engages directly by friction the center tube 15 to form a rigid connection between the eraser socket 17 and the center tube 15. Thus when the eraser socket 17 is rotated, the center tube 15 is rotated, causing the pusher 12 to engage against the threads 19 and thus operate the pusher in the direction desired in accordance with the rotation of the head 17.

The eraser socket supports the eraser 20 within the same and the eraser is adapted to be covered by the non-metallic or plastic cap 21 so as to normally conceal the eraser in the socket 17 when it is not in use. The eraser is adapted to be engaged by a holder 22 which is formed with the bead-like edges shown in Figure 2, which grip into the eraser and this holder is formed so as to fit down into the socket 17 and thus provide a means of holding the eraser 20 so that it can be more easily inserted in the socket 17 by providing a metal-to-metal contact between the holder 22 and the inside of the socket 17.

The eraser socket 17 has its body portion cut to form two or more spring operating ears 23 which have biting edges 24 formed on the free end of the same. The spring ears 23 provide the spring means between the inner surface of the non-metallic cap 21 and the eraser socket 17 for compensating for wear which takes place in the use of the cap 21 by reason of removing the cap whenever it is desired to use the eraser 20.

The sharp edges 24 are turned out slightly, such as takes place when metal is cut out, forming a slight burr on the edge 24 and these edges form a biting means which engages the inner surface of the cap 21 when the same is turned clockwise to operate the center tube 15 of the pencil. Thus the biting edges 24 on the spring ears 23 form a positive engaging means between the plastic cap 21 and the eraser socket 17.

Therefore it is apparent by cutting the ears 23 from the body of the socket 17, I provide spring tooth-like engaging elements between the socket and the cap 21 to cause a positive gripping action between these two elements, causing them to rotate together even after long use and after considerable wear has taken place between the inner surface of the cap 21 and the eraser socket 17. By this means of construction I provide a positive operating means for rotating the mechanism of my pencil A.

In accordance with the patent statutes I have described the principles of operation of my pencil, and I desire to have it understood that the

drawing is merely for the purpose of illustrating the form of carrying out the construction of the means of engagement between the eraser socket and the cap which covers the socket and the eraser and which ordinarily is made of plastic or non-metallic material; however, I desire to have it understood that this cap may be made of any suitable material, even metal, if desired.

I claim:

1. A lead propelling means, an eraser socket for operating said means, and spring ears formed from the body of said eraser socket and having sharp free edges adapted to engage the inner surface of an eraser cap to provide a positive non-slipping engagement between the eraser cap and the eraser socket.

2. An eraser socket for mechanical pencils which is adapted to be rotated to operate the mechanism of the pencil including a cylindrical body portion, gripping means cut from said body portion, a cap for covering said eraser socket, and sharp burr-like edges formed on the free edge of said gripping means to provide a positive engagement between said eraser cap and said eraser socket.

3. The combination of an eraser socket and a cap for covering the same, including an eraser socket, a thimble-like cap adapted to cover the eraser and socket, and spring ratchet-like engaging means formed between said eraser socket and said eraser cap having biting edges adapted to engage said cap for covering the eraser and to form a positive gripping means between the cap and the eraser socket during the rotation of said socket and cap to operate a pencil.

4. The combination of an eraser socket for supporting an eraser of a pencil, a cap for covering the socket and the eraser therein, including a cylindrical-like wall forming the sides of said eraser socket, a cap having a cylindrical-like portion adapted to cover the eraser and said socket, and spring ears cut from the walls of said eraser socket and having a sharp free edge adapted to engage the inner surface for said cap covering the eraser and socket to form a positive grip between said eraser socket and said cap.

5. A pencil including a non-metallic body portion, a lead operating mechanism within said body portion including a rotatable member, an eraser socket secured to said rotatable member in a manner to rotate the same when the eraser socket is rotated, a non-metallic eraser covering cap adapted to fit over said eraser socket, and spring ears formed from the body of said eraser socket and having edges adapted to engage the inner surface of said non-metallic cap for covering the eraser socket and eraser.

6. An eraser socket for a mechanical pencil which is adapted to operate the mechanism of said pencil to propel and repel a writing lead, a cylindrical body portion forming the walls of said eraser socket, spring ears cut from said body portion and formed with a sharp slightly outwardly turned longitudinal free edge, whereby when an eraser cap is slipped over said eraser socket, said sharp longitudinal edges will bite longitudinally on the inner wall of the eraser socket and form a positive engagement between the eraser socket and the cap for covering the eraser to provide a non-slipping operating means for a mechanical pencil.

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