

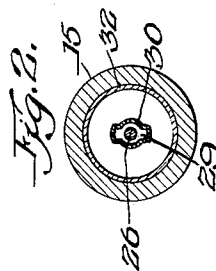
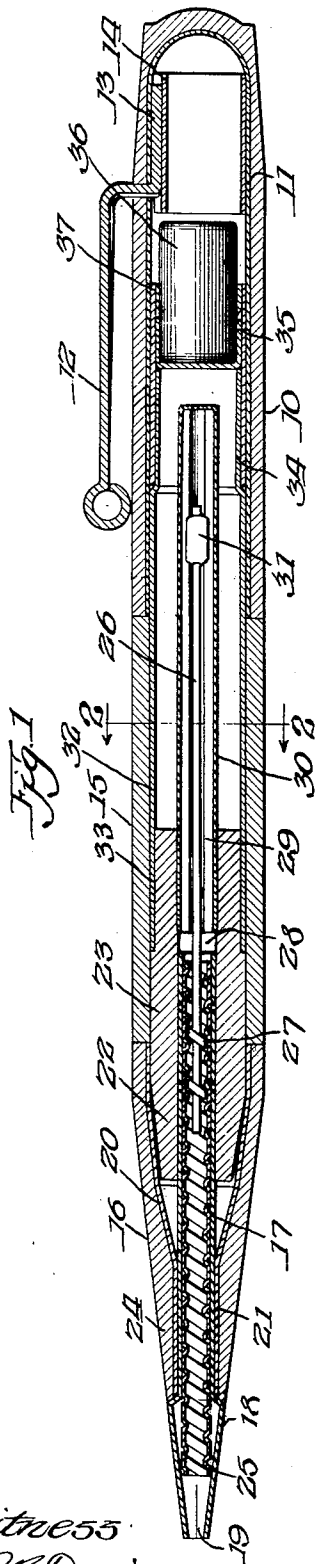
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1,929,969

MECHANICAL PENCIL

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UNITED STATES PATENT OFFICE

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MECHANICAL PENCIL

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Application February 2, 1931. Serial No. 512,808

2 Claims. (Cl. 120—18)

My invention relates to pencils, and more particularly to a mechanical pencil of novel construction.

In the formation of the pencil of my invention, I contemplate the use of a molded, non-metallic cap, barrel and tip. However, it is my experience that the association of these parts is generally unsatisfactory, due to the expansion and contraction thereof in normal use. It is an object of my invention, therefore to produce a mechanical pencil of molded construction, so fabricated with metal sleeves that the various associated molded parts will not stick or freeze together. It is thus possible to provide a predetermined proper fit of the removable parts, with the assurance that the normal use of the pencil will not be reduced by the annoyance of freezing parts.

My invention will be more readily understood by reference to the accompanying drawing, in which:

Fig. 1 is a longitudinal sectional view of a pencil constructed in accordance with my invention;

Fig. 2 is a horizontal sectional view taken on the lines 2—2 of Fig. 1.

By reference to the drawing it will be seen that my invention comprises substantially the cap 10 having the metal sleeve lining 11, to insure against the expansion and contraction of the cap, tending to warp the same and preventing the freezing thereof, and carrying a clip 12, the inner end 13 of which is secured by the sleeve 14, the barrel 15 and tip 16.

The tip 16 comprises the circular metal tube 17, enlarged at its lower end to provide a writing tip 18, having a lead opening 19 therein. The balance of the tip comprises the open-ended tube 20, the lower end 21 of which is firmly fixed to the tube 17, and the upper end being enlarged and adapted to fit over the reduced end 22 of the plug 23. The tube 20 is enclosed within a molded portion 24, the lower end of which contacts the enlarged portion 18, and the upper end contacting the lower end of the barrel 15. The lining of the molded tip 16 with the tube 20 insures a constant free fit over the portion 22 insuring against the freezing of the parts by the expansion or contraction thereof in use.

Within the tube 17, I provide the threaded plunger tube 25 extending substantially the length of the tube 17, and adapted to receive the plunger 26 having the threads 27 cooperating therewith. The plug 23 is provided with a recess 28 adapted to receive the tube 17, the upper por-

tion 29 of the recess being non-circular in cross section to receive the non-circular tube 30 within which the non-circular head 31 of the plunger 26 is adapted to slide without rotation.

For the purpose of strengthening the barrel 15, and to insure against the expansion and contraction thereof tending to warp it, I provide a sleeve 32 tightly fixed to the barrel, and being received at its lower end 33 between the barrel 15 and plug 23, and its upper end being reduced at 34 to receive thereover the eraser sleeve 35 carrying the eraser 26 within the eraser socket 37. As best seen in Fig. 1, the eraser socket 37 is adapted to seat against the upper edge of the reduced portion 34 of the tube 32. The space in the tube 32 adjacent to the guide tube 30 may be utilized as a reserve lead chamber, accessible by removing the eraser sleeve 35 from the upper end of the tube 32.

In operation, the cap 10 is adapted to be tightly secured to the barrel 15, by the contact of the lower portion of the sleeve 11 over the upper portion of the tube 32. Thus the cap and body portion are operable as a single unit. The tip and lead advancing assembly are adapted to be removed from the forward end in any position of adjustment of the parts. By grasping the tip in the left hand, for example, and the body in the right hand, and rotating the body in a clockwise direction, it will be seen that the plunger 26 will be advanced through the tube 25, this for the reason that the head 31 is prevented from relative rotation in the non-circular guide tube 30.

As shown in the figures, the upper end of the tip assembly is of substantially less length than the length of the recess 28; thus, with a continuing rotation of the parts, the head 31 will eventually emerge into the circular portion, and further forward movement of the plunger will be impossible, thus providing a safety zone to insure against damaging the parts when the lead has been used up.

If additional friction is desired between the tip assembly and pencil body, we provide resilient wings 58, 59 on the tube 40, shown in the modified form. The wings are not important herein and are better illustrated in application, Serial No. 450,747, filed May 8, 1930 of myself and Fred G. Woods.

It is understood that both the forms illustrated function identically, the only substantial difference being the molded tip portion without supporting sleeve in the second form, and a slight change in the barrel, although the tip and body

carry substantially the same operating parts, and both have reserve lead chambers.

Obviously modifications and variations may be made in the devices herein disclosed by those skilled in the art, and I do not wish to be limited except as indicated in the appended claims.

I claim:

1. In combination a non-metallic pencil body having a reduced and tapered lower end providing a shoulder at the junction of the reduced portion with the body, a non-metallic tip portion provided with a socket having a metallic liner, said socket being adapted to receive said reduced portion for removability and rotation, and lead

advancing means carried by said tip and removable with said tip.

2. In combination a non-metallic pencil body having a reduced and tapered lower end providing a shoulder at the junction of the reduced portion with the body, a non-metallic tip portion provided with a socket having a metallic liner, said socket being adapted to receive said reduced portion for removability and rotation, and lead advancing means carried by said tip and extending beyond the limit of the non-metallic tip portion and removable bodily with said tip at any position of adjustment of the parts.

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