

UNITED STATES PATENT OFFICE.

JOHN C. WAHL, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WAHL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

MECHANICAL PENCIL.

Application filed November 26, 1923. Serial No. 676,876.

To all whom it may concern:

Be it known that I, JOHN C. WAHL, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Mechanical Pencils, of which the following is a specification.

This invention relates to mechanical pencils and more particularly to the construction of the lead reserve magazine of the pencil.

The invention herein presented consists of improved details of construction on the lead reserve magazine features of the mechanical pencil disclosed and claimed in my co-pending application Serial No. 664,896, filed September 26, 1923.

In the drawings Fig. 1 is a longitudinal sectional view of my invention.

Fig. 2. is a view partially in longitudinal section and partially fragmentary.

Fig. 3. is a cross sectional view on the line 3—3 of Fig. 1.

Fig. 4. is a perspective view, partly broken away, of a portion of a mechanical pencil in which my invention is embodied, and

Fig. 5. is a detail perspective view of the part of the quick release mechanism which is described in my co-pending application above mentioned.

The numeral 1 indicates a metal barrel swedged at one end to form a small aperture. Mounted on the interior of the barrel 1 is a threaded sleeve 2, the threads extending part of its length only, as is illustrated in Fig. 1.

The lower and unthreaded end is swedged to form a lead guide 3. The lower part of the swedged end is threaded as at 4 to engage in the threads on the interior of a steel tip 5. The upper portion of the sleeve 2 is flared outwardly as at 6, and the shoulders formed by this flare are adapted to seat on a bead on the interior of the barrel 1, thus prohibiting the sleeve 2 from being pulled into the barrel 1 when the tip 5 is screwed on to the lower end thereof. It will be seen that the screwing of the tip 5 to the threaded end of the lead guide 3 locks the sleeve 2, the lead guide 3 and the tip 5 in position on the pencil. The steel

tip 5 is similar to that shown in Patent Number 1,151,016 to Charles R. Keeran.

A lead feeding mechanism such as is disclosed in Fig. 4 is provided, the lower half thereof, from the shoulder 7 to the swedged end 8, that is the actual lead feeding mechanism, is similar to that disclosed in my co-pending application, Serial No. 664,896, and comprises in general a threaded crosshead 20, carrying the lead ejector rod 21, the threads 22 on one side of the crosshead engaging with threads 23 formed in the tube 2. The crosshead 20 has longitudinal sliding movement in slot 25, formed in the tubular portion 24. Upon rotation of tube 24 with relation to the outer casing and threaded tube 2, the crosshead due to its engagement with the threads above referred to, will be caused to move longitudinally in slot 23, advancing the lead ejecting rod 21 upon rotation in one direction and retracting the same on rotation in the opposite direction. Further details of this construction will be readily understood upon reference to my co-pending application referred to above. The upper portion, from the numeral 7 to the numeral 9, is of larger diameter than the lower portion from 7 to 8. This upper portion is the reserve lead magazine.

A plug 13 is placed on the interior of the chamber on the shoulder formed at 7, which prevents the leads in the lead magazine from falling through into the propelling mechanism. A slot 10 preferably triangular in shape with the apex somewhat rounded is cut in the side of the lead magazine, this slot being of a length less than the length of the leads which are provided for pencils of this type. The upper portion of the lead magazine is threaded as at 11 to accommodate an eraser bearing cap 12.

To insert leads into the lead chamber, the cap 12 is unscrewed about four turns, and inasmuch as there is a disk 14 directly below the eraser which prevents the extra leads from falling out of the top of the magazine the chamber in the reserve lead magazine is lengthened, leads are inserted through the slot 10 and the cap 12 is screwed back to its original position.

Inasmuch as the bottom and wider end

of the slot 10 is positioned a distance of about $\frac{1}{8}$ of an inch from the shoulder 7, when the cap 12 is screwed on the leads are raised towards this shoulder 7 and out of alignment with the aperture 10, whereupon the leads are prevented from falling out of the chamber through the aperture 10 until the cap 12 is unscrewed a distance sufficient to permit an extra lead to drop out of the aperture 10 as is illustrated in Fig. 4.

It will be noted that because of its triangular shape, the slot 10 will permit but one lead to project at one time. This is due to the narrow rounded apex of the slot and further that the wider portions of the slot formed by the base of the triangular portion of the slot will permit a more facile projection of the upper end of the lead through said slot. This latter triangular shaped slot is disclosed and claimed in my before mentioned application.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a pencil a casing, a lead magazine slidable into and out of said casing, an opening in the side of the lead magazine of less length than the length of a lead, and movable means associated with said lead magazine which in one position will hold both ends of the leads in the magazine out of registry with the slot and in another position will permit one end of a lead to project out of said slot.

2. In a pencil a casing, a lead magazine in said casing and having an opening in the side thereof, said lead magazine being movably mounted in the casing so as to expose the opening in one position and close it in another, the lead magazine being of a length approximately equal to the length of a lead, and a closure for the end of the magazine, said closure being longitudinally movable to hold the ends of the leads beyond the ends of the opening in one position and to permit one end of a lead to move out of the opening in another position.

3. In a mechanical pencil, the combination of a casing, a lead propelling mechanism houseable therein and having means cooperating with said casing for propelling the lead, said mechanism being constructed and arranged to have at least a portion thereof projectable outside of said casing, said projectable portion being formed with a lead holding chamber of a length substantially equal to the length of a lead, and having a slot in the wall thereof of less length than a lead whereby to prevent the projection of a lead through said slot, and means for increasing the length of said chamber for permitting the end of a lead to project through said slot.

4. In a mechanical pencil, the combination of a casing, a lead propelling mechanism

housed therein and having means cooperating with said casing for propelling the lead, said mechanism being constructed and arranged to have at least a portion thereof projectable outside of said casing, said projectable portion being formed hollow and with an open end and of a length substantially equal to the length of a lead, and provided with a slot in its wall of less length than a lead, a cap adapted to close the end of said projectable portions and means for shifting said cap on said projectable portion to increase the length of the chamber therein to permit a lead to project through said slot.

5. In a mechanical pencil, the combination of a casing, a lead propelling mechanism housed therein and having means cooperating with said casing for propelling the lead, said mechanism being constructed and arranged to have at least a portion thereof projectable outside of said casing, said projectable portion being formed hollow and with an open end and of a length substantially equal to the length of a lead and provided with a slot in its wall of less length than a lead, a cap adapted to fit on the open end of said projectable portion having a disc therein spaced from the end to close said open ended tube and to form an eraser seat, an eraser in said seat, and means permitting the adjustment of said cap on said projectable portion to increase the length of said chamber to permit a lead to project through said slot.

6. In a pencil a casing, a lead magazine longitudinally movable in said casing and having a slot in its side wall of less length than the length of a lead, and a longitudinally movable closure for said magazine for moving the contained leads with relation to said slot.

7. In a pencil a casing, a lead magazine in said casing having a slot in its side wall and movable longitudinally of said casing to expose the slot, and a closure for said magazine movable longitudinally thereof to move the leads endwise into and out of position for withdrawal through the slot.

8. In a pencil, a casing, a lead magazine having a slot in its wall and withdrawable from the casing to a position to expose the slot, the length of the magazine being approximately equal to the length of a lead and the length of the slot being less than the length of a lead, and means for increasing the length of the magazine chamber for permitting the end of a lead to project through the slot.

9. In a pencil, a casing, a lead magazine having a slot in its wall and movable in the casing to a position to expose the slot, and means for varying the length of the magazine chamber to selectively permit and prevent projection of one end of a lead

through the slot when the slot is in exposed position.

5 10. In a lead magazine for mechanical pencils, a lead holding chamber of a length approximately equal to the length of a lead, the side wall of the chamber having a slot of less length than the length of a lead, and

a movable cap on the end of the magazine to vary the length of the chamber for the purpose set forth.

In witness whereof, I have hereunto subscribed my name.

JOHN C. WAHL.