J. C. WAHL.

MECHANICAL PENCIL.

APPLICATION FILED FEB. 10, 1919.

1,349,025.

Patented Aug. 10, 1920.

Fig. 1.

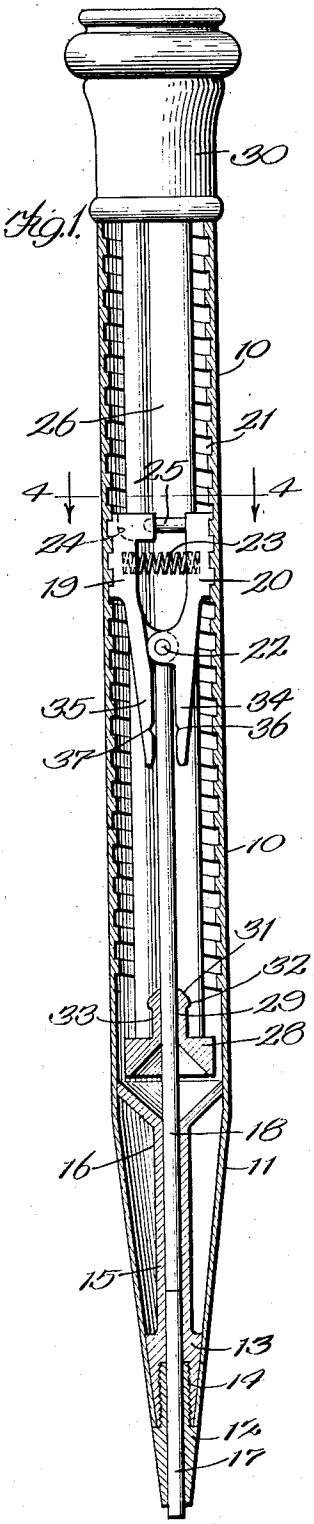


Fig. 2.

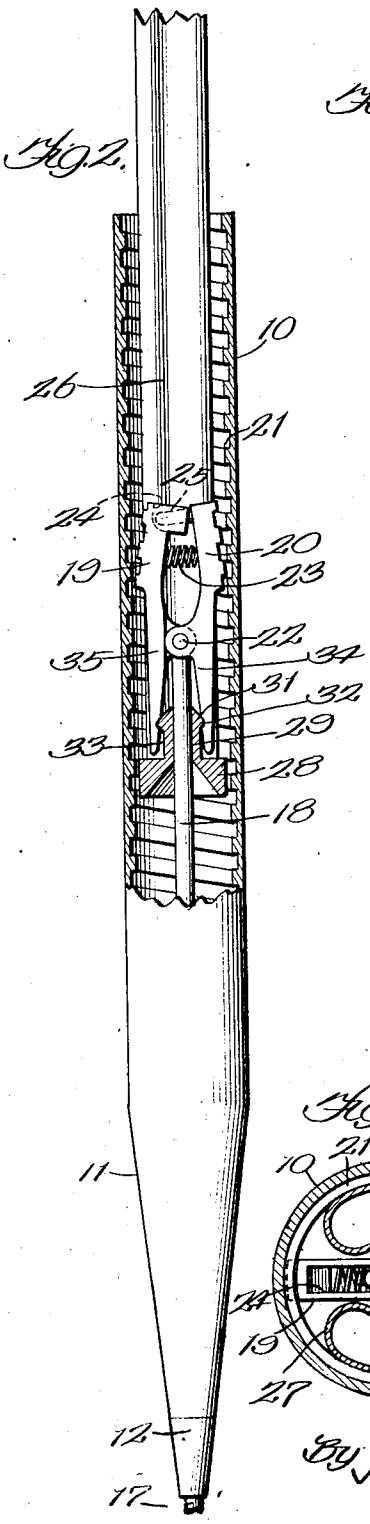


Fig. 3.

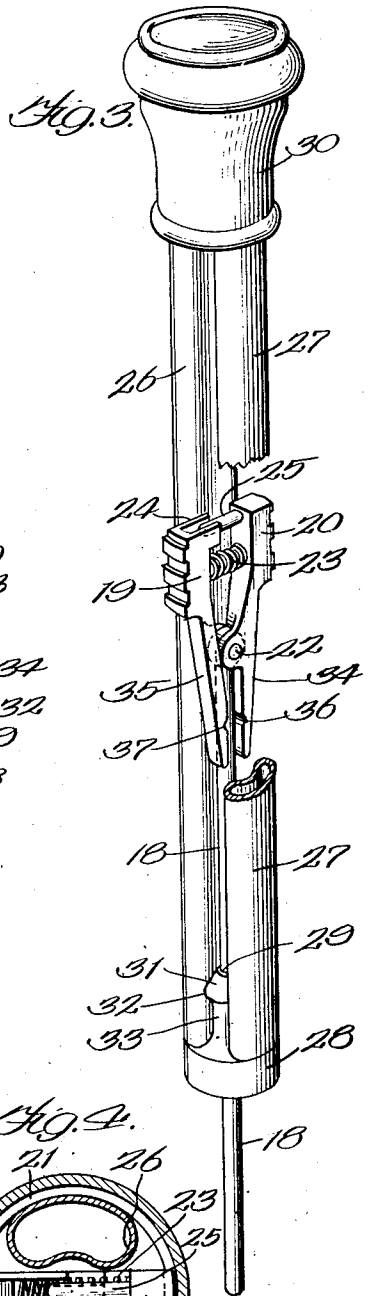
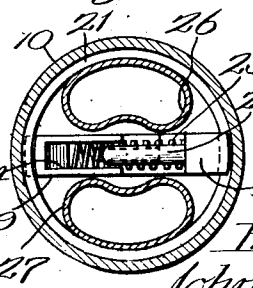


Fig. 4.



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By Arthur F. Foot & Co. Attys

UNITED STATES PATENT OFFICE.

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MECHANICAL PENCIL.

1,349,025. Specification of Letters Patent. Patented Aug. 10, 1920.

Application filed February 10, 1919. Serial No. 276,131.

To all whom it may concern:

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

My invention is an improvement in mechanical pencils, particularly in the class of pencils in which a lead of small diameter is forced through a tip and is designed to render the working of pencils of this type more convenient and efficient.

I have shown my invention as particularly applied to a pencil described in the United States Letters Patent to Keeran, No. 1,151,016, August 24, 1915, which pencil has been extensively marketed under the name of the Eversharp pencil.

My invention will be best understood by reference to the following figures, of which—

Figure 1 shows a longitudinal section of my improved pencil;

Fig. 2 shows a part longitudinal section illustrating the particular action of a certain mechanism in the pencil;

Fig. 3 is a perspective view of certain details of my improved pencil, and

Fig. 4 is a section along the line 4—4 of Fig. 1.

Referring to the figures, my improved pencil consists of a casing 10, having a conical end 11, in which is mounted a tip 12, having longitudinal ridges as described in the cited patent to Keeran. The tip 12 is supported in a piece 13, which contains a threaded hole 14, into which the tip 12 is mounted. The piece 13 also forms a tube 15 and a guiding funnel 16. The lead 17 is of a diameter a little smaller than the diameter of the hole 15, and is propelled through the tip 12 by a plunger 18, on the end of which are pivoted the jaws 19 and 20. These jaws serve to form a crosshead which engages the screwthreads 21 on the interior of the casing 10. The jaws 19 and 20, as before noted, are pivoted at 22 on the plunger 18, and are held in engagement with the thread 21 by a compression spring 23 extending between the jaws 19 and 20. The jaw 19 has formed on it a fork 24 which engages and guides a pin 25, mounted in the jaw 20. The jaws 19 and 20 are revolved in the casing 10 by means of the magazines 26 and 27, which extend on either side of the jaws 19 and 20 and serve to rotate these jaws and thus advance the plunger 18 to propel the lead 17 through the tip 12. The magazines 26 and 27 are united at their lower end into a support 28 having a hole 29 therein, which serves to guide the lower end of the plunger 18. The upper ends of the magazines 26 and 27 are united to a cap 30, by means of which the magazines 26 and 27 are turned. The magazines 26 and 27 are of a suitable size to frictionally fit into the interior of the threaded casing 10, which thus affords a support for the cap 30 and its attached magazines 26 and 27. As these magazines are turned, they will of course rotate the jaws 19 and 20 relative to the casing 10 and thus advance these jaws and the attached plunger 18, whereupon the lead 17 will be fed through the tip.

I will now describe the means by which the jaws 19 and 20 are drawn to their extreme position for the purpose of inserting a new lead in the pencil.

One of the objects of my invention is to provide the construction of the jaws 19 and 20 so that these jaws will not have to be screwed to the upper end of the casing 10 (Fig. 1), as is necessary in the pencil disclosed in the cited patent to Keeran, but that the jaws may be withdrawn from the tube 10 by means of a straight pull. I shall now describe the mechanism by which this result is accomplished. The upper portion of the magazine support 28 is furnished with a point 31, conical in shape. This point has a portion 32 slightly larger in diameter than the shank 33 of the support 28. The jaw 19 is provided on its lower end with an extension 35, and the jaw 20 is provided with a similar extension 34. The extension 34 is provided with a depression 36, and the extension 35 is provided with a similar depression 37. When it is desired to draw the jaws 19 and 20 from the pencil, the magazines 26 and 27 are withdrawn by the cap 30. As soon as the conical portion 31 contacts with the extensions 34 and 35 these extensions are forced apart and the jaws are thrown into the position shown in Fig. 2, that is, are disengaged from the threads 21 on the interior of the casing 10. The crosshead and its attached plunger 18 may then be readily withdrawn from the casing 10. The portion 32 on the support 28 is adapted

to register in the depressions 36 and 37 and thus securely hold the jaws 19 and 20 in their proper relation to the support 28.

On replacing the magazines 26 and 27 and the jaws 19 and 20 into the casing 10, it will be observed that no resistance will be encountered until the plunger 18 encounters the lead 17. The plunger 18 will then be arrested. However, continued forward movement of the magaiznes 26 and 27 will disengage the portion 32 from the depressions 36 and 37, and continued forward motion of the magazines 26 and 27 will allow the jaws 19 and 20 to spring into engagement with the thread 21 on the interior of the casing. The pencil is then ready for advancing of the plunger by the jaws 19 and 20, by means of a turning movement of the cap 30.

Many variations and improvements may be made in the precise structure herein described without departing from the spirit of my invention, since I claim:

1. In a mechanical pencil, the combination of a lead to be advanced, a plunger to advance the same, a screw member engaging said plunger and adapted to advance said plunger, and means to disengage said plunger from said screw member, thereby permitting the withdrawal of said plunger without a turning movement.

2. In a mechanical pencil, the combination of a lead, a plunger and a crosshead to advance said plunger, said crosshead consisting of two members pivoted relative to said plunger.

3. In a mechanical pencil, the combination of a casing, a screw thread interior to said casing, and a plunger device including two pieces relatively movable to each other and adapted to engage said thread.

4. In a mechanical pencil, the combination of a casing, a screw thread interior to said casing, a plunger device including two pieces relatively movable to each other and adapted to engage said thread, and a spring adapted to hold said pieces into engagement with said thread.

5. In a mechanical pencil, the combination of a casing, a screw thread interior to said casing, a plunger device including two pieces relatively movable to each other and adapted to engage said thread, and a spring supported by said pieces and adapted to hold them into engagement with said thread.

In witness whereof I have hereunto subscribed my name.

JOHN C. WAHL.