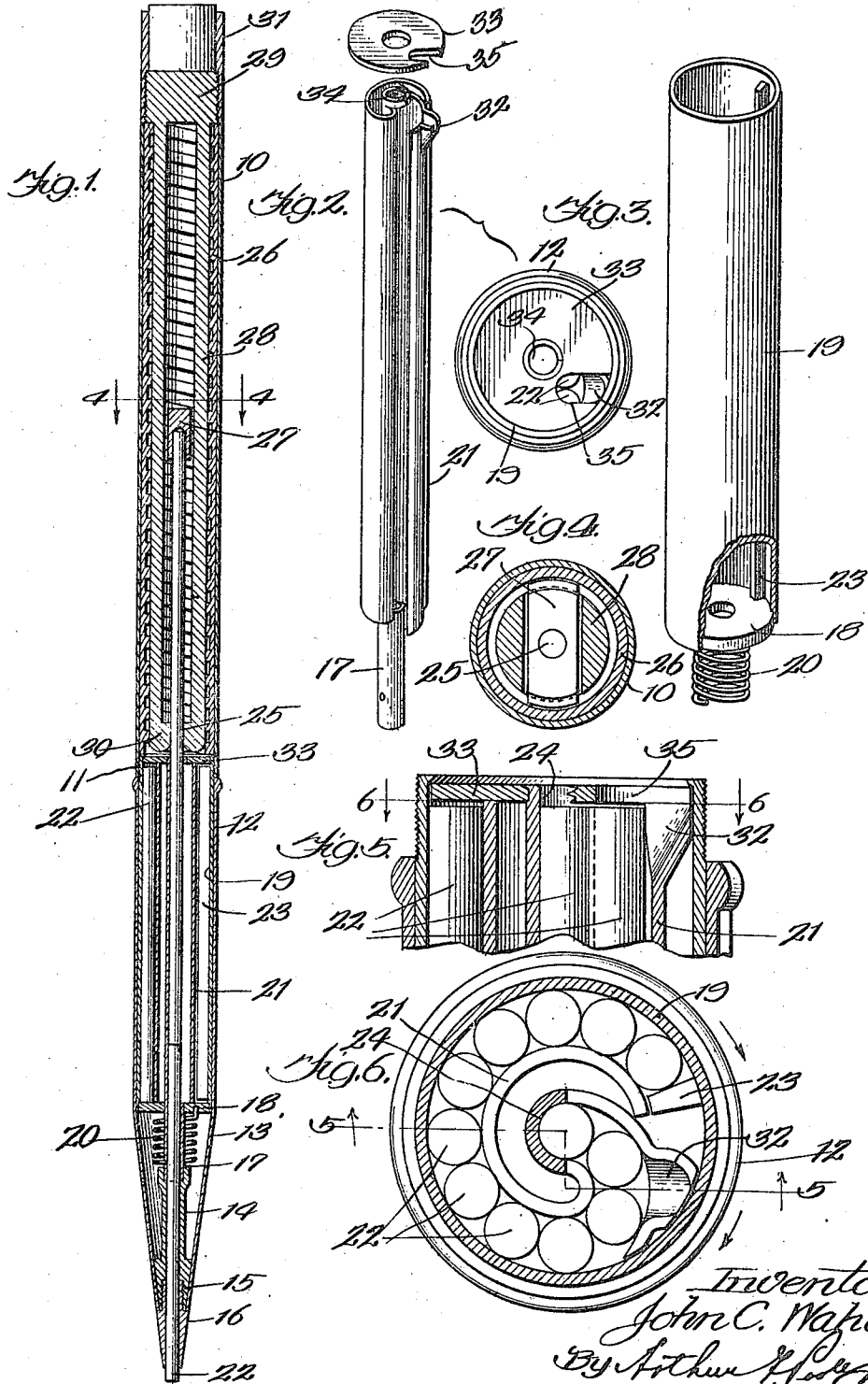


J. C. WAHL.
SELF FEEDING PENCIL.
APPLICATION FILED JAN. 5, 1918.

1,301,341.

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Inventor:
John C. Wahl.
By Arthur H. [unclear]

UNITED STATES PATENT OFFICE.

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

SELF-FEEDING PENCIL.

1,301,341.

Specification of Letters Patent. Patented Apr. 22, 1919.

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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 Self-Feeding Pencils, of which the following is a specification.

My invention is a magazine lead pencil of the class in which a lead is propelled through a tip by a pusher, and the object of my invention is to provide a magazine for holding all the leads in a pencil of the above described type and also to provide the magazine with means for automatically feeding a new lead into position when a new lead is required.

My invention may be best understood by reference to the accompanying drawings, of which

Figure 1 is a longitudinal section of my improved pencil;

Fig. 2 is a detail of the magazine;

Fig. 3 is a detail of the casing surrounding said magazine;

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

Fig. 5 is an enlarged view of the top of the magazine, and

Fig. 6 is a section along the line 6—6 of Fig. 5.

Similar numerals of reference refer to like parts throughout all the figures.

The mechanism of my improved pencil is contained in a metallic casing 10, which is provided with a thread 11, into which is screwed a corresponding thread on the lower portion 12. The lower portion 12 terminates in a cone 13, into which is soldered a tube 14, having a threaded portion 15, which serves to support the pencil tip 16. The tip 16 is preferably made with small ridges on its interior, similar to the pencil shown in the patent to Keeran, No. 1,151,016. These ridges extend into the tip, defining a hole slightly smaller than the outside diameter of the leads. The leads are forced through said ridges by a suitable pusher hereinafter to be described, the ridges cutting grooves into the leads and thereby preventing them from turning in the tip or falling out of the same.

In the upper end of the tube 14 is placed a tube 17, which extends through a plate

18, which is riveted on the bottom of a shell 19, which is secured to the interior of the casing 12 by solder or other means. Secured to the plate 18 is a tension spring 20, the other end of which is secured to the tube 17, which in its turn is secured rigidly to a spiral magazine 21, a section of which is clearly shown in Fig. 6. The spring is given a tension, tending to rotate the spiral magazine 21 in the direction of the arrow (Fig. 6), the tension of the spring being transmitted to said magazine through the medium of the tube 17.

The spiral magazine contains a plurality of leads 22, and inspection of Fig. 6 will render it apparent that if the spiral magazine 21 is given a tension to rotate in the direction of the arrow that a blade 23, secured to the interior of the casing 19, will crowd the leads 22 together and the innermost one of said leads will be located in the central portion 24 of the magazine 21, in which position it will be concentric with the tube 17 and also with a pusher 25, which is advanced within the casing by means hereinafter to be described.

The upper portion 10 of the casing has a threaded sleeve 26 on its interior, in which is mounted a crosshead 27 having threads thereon engaging the threads in the sleeve 26. The pusher 25 is mounted in the crosshead 27 and said crosshead is advanced in the tube by means of a fork 28, the tines of which are united in a head 29 and go on either side of the crosshead 27. The tines of the fork 28 are united at their lower end by a crosspiece 30, in which the plunger 25 is slidably mounted. The fork 28 is frictionally supported by the interior of the threaded sleeve 26 and the head 29 serves to support a thumbpiece 31, by means of which the fork 28, and consequently the crosshead 27, is turned.

I shall now describe the operation of my improved pencil:

Assuming the magazine 21 to be filled with leads 22, as shown in Fig. 6, the particular lead 22 which is in the tip 16 is advanced by the plunger 25 until it is completely used, the fact of the plunger 25 following the central lead 22 as said plunger is advanced serving to prevent the next adjacent lead 22 from occupying the central portion

24 of the magazine 21. When the plunger 25 is withdrawn from the central portion of the magazine, the lead 22, which is next to said central portion, is forced into said central portion by reason of the tendency of the magazine 21 to rotate relative to the shell 19, in which is mounted the blade 23. A new lead is thereupon forced into the central portion 24 of the magazine 21 by reason of the magazine 21 being turned by the tension of the spring 20. The plunger 25 is then advanced by means of the thumbpiece 31 and this new lead is fed into the tip 16. This process is continued until but three leads remain in the magazine. The magazine is then replenished in the following manner: The upper portion 10 of the casing is unscrewed from the lower portion 12, thereby separating the pencil into two parts.

20 On the upper end of the magazine 21 is a lip 32, which is inclined to the magazine, as shown. The upper end of the magazine is closed by a plate 33, which is frictionally mounted on an extension 34 of the magazine 21. The plate 33 has in it a slot 35, which is normally out of registry with the lip 32. When it is desired to refill the magazine, the plate 33 is turned until the slot 35 is in registry with the lip 32. New leads are inserted one at a time into said lip and the new lead will squeeze in between the two leads adjacent to the lip (Fig. 6) and thus make a place for itself in said magazine by rotating the magazine 21 against the tension of the spring 20. This process is continued until the magazine is full, as shown in Fig. 6. The plate 33 is then turned so that the slot 35 will not be in register with the lip 32 and the upper portion 10 of the casing is screwed onto the lower portion 12. The plunger 25 is then advanced by means of the thumbpiece 31 and the lead occupying the central portion 24 of the magazine 21 is fed into the tip 16.

45 Many variations may be made from 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 casing, a plurality of leads, a spiral magazine containing said leads, and means to rotate said magazine in said casing. 50

2. In a mechanical pencil, the combination of a casing, a spiral magazine arranged parallel to said casing, and means to rotate said magazine relative to said casing. 55

3. In a mechanical pencil, the combination of a casing, a spiral magazine arranged parallel to said casing, and a spring to rotate said magazine relative to said casing. 60

4. In a mechanical pencil, the combination of a casing, a tip in said casing, and a spiral magazine within said casing having a central portion concentric with said tip. 65

5. In a mechanical pencil, the combination of a casing, a tip, a spiral magazine rotatably mounted within said casing and having a central portion concentric with said tip, a plunger, and means to advance said plunger into said central portion. 70

6. In a mechanical pencil, the combination of a casing, a spiral magazine rotatably mounted within said casing, a tip in said casing, a central portion to said magazine concentric with said tip, a plurality of leads in said magazine, and means for feeding said leads into the central portions of said magazine. 75

7. In a mechanical pencil, the combination of a casing, a tip mounted in said casing, a magazine rotatably mounted in said casing, said magazine having a central portion concentric with said tip, a blade fixed in said casing, a plurality of leads inserted in said magazine, and a spring tending to rotate said magazine relative to said blades, whereby said leads are fed into the central portion of said magazine. 85

In witness whereof I have hereunto subscribed my name.

JOHN C. WAHL.