A. F. POOLE.

SINGLE MAGAZINE PENCIL.

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1,406,077.

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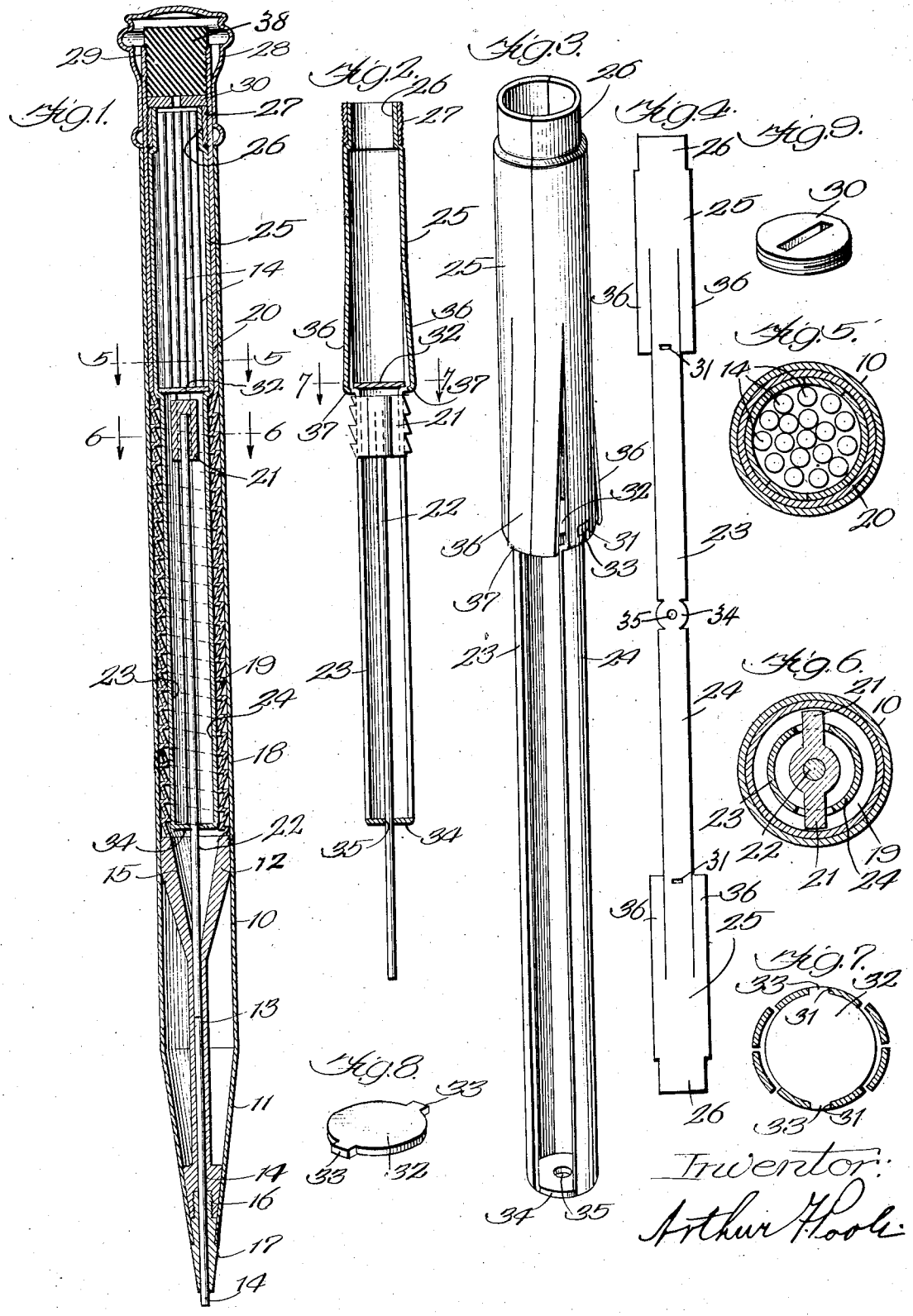

UNITED STATES PATENT OFFICE.

ARTHUR F. POOLE, OF KENILWORTH, ILLINOIS, ASSIGNOR TO THE WAHL COMPANY, OF NEW CASTLE, DELAWARE, A CORPORATION OF DELAWARE.

SINGLE-MAGAZINE PENCIL.

1,406,077. Specification of Letters Patent. Patented Feb. 7, 1922.

Application filed October 24, 1917. Serial No. 198,333.

To all whom it may concern:

Be it known that I, ARTHUR F. POOLE, a citizen of the United States, and resident of Kenilworth, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Single-Magazine Pencils, of which the following is a specification.

My invention is a mechanical pencil in which there is a stick of lead of small diameter forced by a screw actuated pusher through a tip provided with longitudinal ridges which cut grooves in the lead, thereby preventing the same from dropping out and also from turning in the tip. In particular my invention is an improvement over the pencil described in Patent No. 1,130,741, issued March 9, 1915 to Charles R. Keeran, and has for its object the improvement of structural details of said pencil, particularly in the construction of the magazine and the means for operating the plunger thereby to reduce the cost of the same.

While my invention is particularly designed for use in connection with the pencil disclosed in the cited patent to Keeran, yet the improved structure herein described may be used in connection with pencils of different types and I do not wish my invention to be limited to use in the particular form of pencil disclosed in said patent.

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

Fig. 1 is a longitudinal section of the pencil;

Fig. 2 is a view, partly in section, of the magazine and plunger;

Fig. 3 is a view on an enlarged scale of the magazine and means for actuating the plunger;

Fig. 4 is a view on a reduced scale of the blank from which the magazine is formed;

Fig. 5 is a section across the lines 5—5 of Fig. 1;

Fig. 6 is a section across the line 6—6 of Fig. 1;

Fig. 7 is a section across the line 7—7 of Fig. 2;

Fig. 8 is a detail of the bottom of the magazine, and

Fig. 9 is a detail of the magazine top.

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

My improved pencil is contained in a cylindrical casing 10, which is preferably of metal and provided with a tapered end 11. Soldered in said casing is a funnel 12, consisting of a tube 13, which serves as a guide for the lead 14 and a funnnel-shaped end 15 for the purpose of guiding the lead into the tube 13 when a new lead is inserted. The funnel 12 is provided with a threaded portion 16, into which screws the tip 17, which is preferably made of steel and is provided with interior ridges for the purpose of holding the lead 14, as described in the cited patent to Keeran. Inserted in the upper part of the casing 10 is a tube 18, which is provided with a ratchet-shaped thread 19 and a cylindrical portion 20 and since the thread 19 is rigid with the casing 10, in some of the claims I speak of this thread as a thread rigid with the casing. Engaging with the thread 19 is a crosshead 21, which has ratchet threads adapted to engage with the threads 19.

Fastened in the crosshead 21 is a pusher wire 22, which extends into the tube 13 and serves to advance the lead as the crosshead is screwed down the threads 19. The crosshead 21 is made of a section shown in Fig. 6, and is engaged by the arms 23 and 24 and slides between them. These arms are rigid with the formed magazine 25, which serves as a receptacle for extra leads used in the pencil. The top of the magazine 25 has a contracted portion 26, around which is placed a threaded collar 27, which serves as a support for a cap 28, mounted on a sleeve 29, having a threaded interior portion adapted to engage the collar 27. The cap 28 is held frictionally on the sleeve 29.

In the interior of the sleeve 29 is a disk 30 having a screw slot therein, said disk serving as an upper cover for the magazine 25. In the sides of the magazine 25, holes 31 are provided diametrically opposite each other to provide a support for a bottom plate 32 having ears 33 adapted to enter the holes 31. Said ears are riveted in said holes and serve to hold the halves of the magazine 25 together.

The arms 23 and 24 are connected by an

intermediate piece 34, having a hole 35 therein through which passes the pusher wire 22.

The magazine 25, the arms 23 and 24 and the intermediate piece 34 are formed up from a single blank shown on reduced scale in Fig. 4. The arms 23 and 24 and the two sides of the magazine 25 being bent up from the intermediate piece 34, and formed into approximately circular outline as shown. The magazine 25 is provided with spring tongues 36, which are slightly rounded on their bottom ends 37 and serve to hold said magazine frictionally in the interior of the upper portion 20 of the tube 18. Said tongues 36 may either be cut in the blank before it is formed, or the blank may be formed first, the bottom plate 32 inserted and the tongues 36 cut afterwards.

The cap 28 of the pencil is provided with an eraser 38, which is frictionally held in the sleeve 29 and is supported by the plate 30, which screws into the interior of the sleeve 29. In assembling the parts of the magazine the crosshead 21 is first inserted between the arms 23 and 24. Then the bottom plate 32 is inserted and the ears 33 riveted. The threaded collar 27 is then inserted on the contracted portion 26 of the magazine and soldered in its place.

A lead 14 is then dropped in the pencil tube and readily finds its place, being guided by the funnel 15. The assembled magazine and crosshead is then inserted and the lead may be propelled through the tip 17 by turning the magazine by means of the cap 28, which is screwed on the collar 27. The ratchet threads 19 are provided so as to afford no lodging place for the lead 14 to catch upon when said lead is dropped in the pencil casing.

Many advantages result from my herein described construction, especially those of ease of manufacture and cheapness. The fact of the magazine and the turning means to operate the crosshead being formed from a single stamped piece of metal results in great cheapness of manufacture and ease of assembly. Many variations may be made in the described structure herein disclosed without departing from the spirit of my invention, since I claim:

1. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, a magazine, arms formed on one end of the magazine and engaging the plunger for operating the same, and a plate connecting the opposite ends of the arms, said plate having an opening therein through which the plunger passes.

2. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a single blank bent to form spaced arms for engaging the plunger, and a magazine frictionally engaging the interior of the casing.

3. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a blank having end portions and an intermediate portion, the blank being bent so that the intermediate portion forms spaced arms to engage the plunger and the end portions form a magazine.

4. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a blank having end portions and an intermediate portion, the blank being bent so that the intermediate portion forms spaced arms to engage the plunger and the end portions form a magazine, the magazine having spring arms struck therefrom to frictionally engage the interior of the casing.

5. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a single strip of material having an opening intermediate the ends, the strip being bent to form a horizontal portion with the opening therein, spaced arms and a magazine, the spaced arms engaging the plunger and the opening in the horizontal portion forming a guide for the plunger.

6. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a single blank of material having end portions and an intermediate portion with an opening therein, the end portions being slit longitudinally and the strip being bent to form a horizontal portion with the opening therein, spaced arms and a magazine with the portions formed by the longitudinal slits bent outwardly therefrom to frictionally engage the casing, the spaced arms engaging the plunger and the opening in the horizontal portion forming a guide for the plunger.

7. A mechanical pencil comprising a casing, a lead, a plunger rotatable and slidable in the casing for advancing the lead, means for rotating the plunger, said means being formed of a single strip of material bent to form spaced arms engaging the plunger and a magazine frictionally engaging the casing, and a cap on the end of the magazine for rotating the same.

8. A mechanical pencil comprising a casing having screw threads on the interior thereof, a lead, a plunger adapted to engage the lead and having a head with screw threads for engaging the threads in the casing, and means for rotating the plunger for advancing the lead in the casing, said means

being formed from a single strip of material bent to form spaced arms receiving the head of the plunger therebetween, and a magazine frictionally engaging the interior of the casing.

9. A mechanical pencil comprising a casing having screw threads on the interior thereof, a lead, a plunger adapted to engage the lead and having a cross head on the end with screw threads to engage the threads in the casing, and means for rotating the plunger to advance the lead in the casing, said means being formed from a single strip having an opening intermediate its ends, the strip being bent to form a horizontal portion with the opening therein, spaced arms and a magazine, the magazine frictionally engaging the interior of the casing, the arms receiving the cross head therebetween, and the opening in the horizontal portion forming a guide for the plunger.

10. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, a magazine having yieldable members to frictionally engage the casing, and arms formed on the magazine for engaging and operating the plunger.

11. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, a magazine having integral yieldable fingers to frictionally engage the casing, and arms formed on the magazine for engaging and operating the plunger.

12. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing, and means for operating the plunger, said operating means being formed from a blank of material folded to form a magazine and spaced arms for engaging the plunger, and a plate secured intermediate the ends of the folded blank for forming the bottom of the magazine and for connecting the folded portions together.

13. In a pencil, in combination, a casing, a longitudinally perforated tip portion associated therewith, a lead propeller co-operating with the tip, a removable shell within the casing partitioned intermediate its length to form an extra lead receiving chamber in its rearward portion, and its lower portion longitudinally slotted and otherwise fashioned to support and guide the lead propeller, and means included in the fashioning of the casing and the lead propeller for co-relation to effect a projection or retraction of the lead propeller as a result of relative turning thereof.

14. In a pencil, in combination, a casing, a longitudinally perforated tip portion associated therewith, a lead propeller co-operating with the tip, a removable shell within the casing partitioned intermediate its length to form an extra lead receiving chamber in its rearward portion, and its lower portion longitudinally slotted and otherwise fashioned to support and guide the lead propeller, and means for co-relating the casing and lead propeller to effect a projection or retraction of the lead propeller as a result of relative turning thereof.

15. In a pencil, in combination, a casing, a longitudinally bored tip connected therewith, a lead propeller provided with a cross head, co-operating for projection within the tip, a shell within the casing partitioned intermediate its length to form an extra lead receiving chamber in its rearward portion and to support the lead propeller in its forward portion, said forward portion being longitudinally slotted for co-operation with the cross head of the propeller and means for relating the cross head of the propeller to the casing whereby relative turning will cause the propeller to be advanced or retracted within the shell.

16. A mechanical pencil comprising a casing, a lead, a plunger for advancing the lead in the casing provided with a cross head, a shell, forwardly extending spaced arms formed on one end of the shell constituting a control for the lead propeller including its cross head, and means including the relative fashioning of the casing and the cross head of the propeller whereby relative turning of the casing and shell will cause advancement or retraction of the lead propeller within the casing.

17. A mechanical pencil comprising a removable casing, a lead, a plunger for advancing the lead in the casing provided with a cross head, a shell, forwardly extending spaced arms formed on one end of the shell constituting a control for the lead propeller including its cross head, and means active, through relative turning of the casing and shell to cause the lead propeller to be advanced and retracted within the casing.

In witness whereof I have hereunto subscribed my name.

ARTHUR F. POOLE.