L. V. ARONSON.

PENCIL.

APPLICATION FILED MAY 16, 1921.

1,411,558.

Patented Apr. 4, 1922.

Fig. 1.

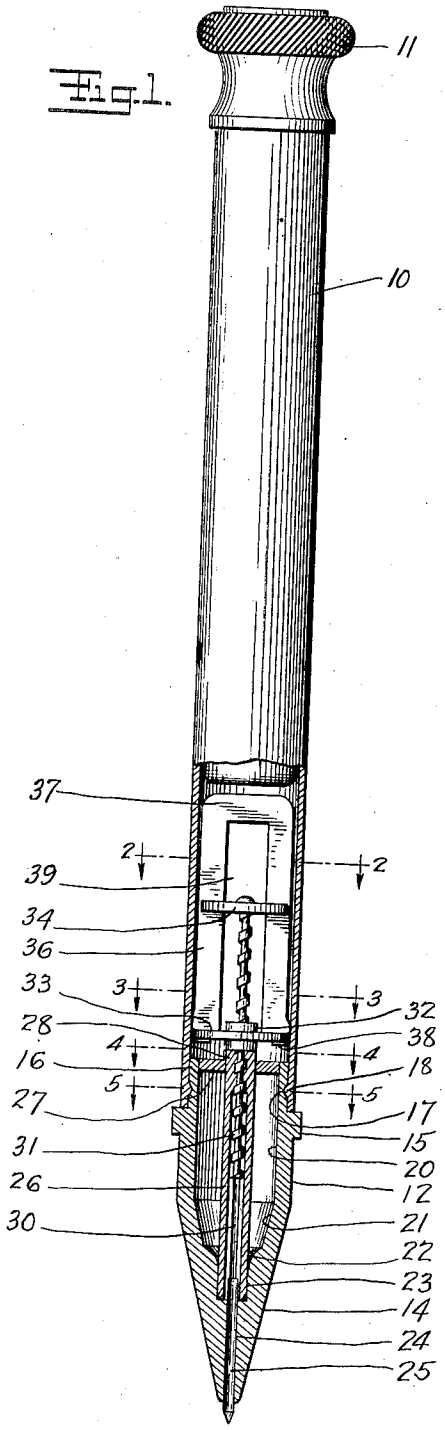


Fig. 2.

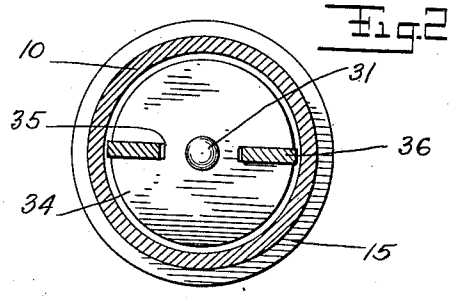


Fig. 3.

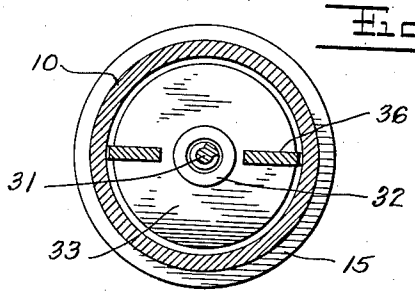


Fig. 4.

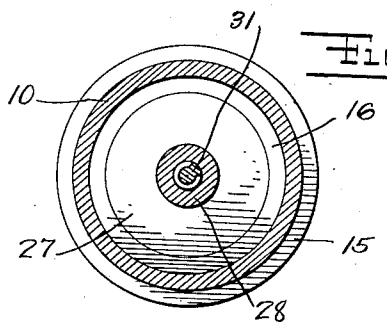
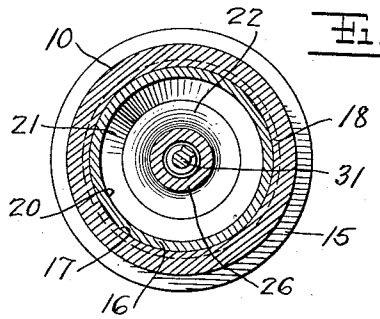


Fig. 5.



INVENTOR

Louis V. Aronson

BY

Frank C. Fischer

ATTORNEY

UNITED STATES PATENT OFFICE.

LOUIS V. ARONSON, OF NEWARK, NEW JERSEY.

PENCIL.

1,411,558. Specification of Letters Patent. Patented Apr. 4, 1922.

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To all whom it may concern:

Be it known that I, LOUIS V. ARONSON, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

The main object of this invention is to provide a neat and convenient type of lead pencil adapted for general use, the leads, which may be of any grade of hardness, being so small in diameter as to require no point sharpening in order to produce a relatively fine line.

Another object is in the provision of a novel type of lead propelling means, simple and efficient in use and in which new leads may be readily substituted as occasion requires.

These and other objects, such as low productive cost, durability and general utility, are attained by the novel construction, combination and arrangement of parts hereinafter clearly described and shown in the annexed drawings, forming an essential part of this specification, and in which:—

Figure 1 is an enlarged partial side elevational, partial longitudinal sectional view of a pencil made in accordance with the invention, the section being taken substantially in a plane passing through the center.

Figure 2 is a greatly enlarged transverse sectional view taken on line 2—2 of Fig. 1.

Figure 3 is another similar sectional view taken on line 3—3 of Fig. 1.

Figure 4 is a like view taken on line 4—4 of Fig. 1.

Figure 5 is still another transverse sectional view taken on line 5—5 of Fig. 1.

Stated concisely the pencil is comprised of three principal elements, namely a barrel, cap and tip or point.

The barrel contains in its upper portion a receptacle for holding a supply of leads or any other desired purpose, the same being accessible by removing the cap or head held by screw threads or a slip tension joint as preferred.

The tip is engaged permanently with the lower end of the barrel but in such manner as to permit relative rotation, such movement being utilized in advancing or expelling the leads outward through a long, close fitting axial passage, the propelling mechanism being contained in the end of the barrel adjacent the cap.

Referring in detail to the drawings, the numeral 10 designates a cylindrical tube or barrel, preferably of uniform diameter, having an enlarged ornamental cap or head 11 engaged at one end and a tip, generally designated by the numeral 12 at the other.

This tip has a conical outer end 14, the apex of which is of relatively small diameter and its inverted base merges into a cylindrical portion, equivalent in diameter to that of the barrel 10, which rests upon an annular integral ring 15.

An extending portion 16 of the tip is fitted to the barrel and contains an annular groove 17 into which the material of the barrel is spun or otherwise forced, the ring 18 thus formed constituting a lock holding the parts from separation but allowing one to be turned relative to the other.

A circular chamber 20 is formed in the upper, inner part of the tip, contracted conically as at 21 in following the profile of the tip, the bottom of the conical recess merging by a curve 22 into a straight axial bore 23 formed with a distinct shoulder at the bottom into which the concentric opening 24 for the lead 25 enters.

The lower outer end of the tip is preferably naturally or artificially hard and the opening 24 fits the lead 25 accurately so as to retain it normally in adjusted position by the friction of the engaging surfaces.

Fitting the bore 23 and abutting its shouldered bottom is a tube 26 fixed in and extending slightly through a disc 27 secured in the chamber 20 level with the inner end of the tip.

A plunger 30, of lesser diameter than the lead 25, operates in the lower end of the tube and is part of a coarse pitched screw 31 fitting threads formed in the upper portion 28 of the tube 26, the screw being guided by a smooth bored sleeve or bushing 32, disposed rigidly midway its length in a disc 33 fixed in the lower portion of the barrel 10, the lower end of the sleeve being closely adjacent to the top 28 of the tube 26.

The extreme upper end of the screw 31 is riveted or otherwise fixed in another disc 34 slidable in the barrel and containing two opposed radial slots 35 extending in from its periphery as shown in Figs. 1 and 2.

A plate guide having two spaced elements 36, integrally connected at the top by a bar 37, passes freely through the slots 35 and is fixed at the bottom of the elements 36 in

the disc 33, containing the sleeve 32, by solder or other means indicated at 38, the screw 31 being longitudinally movable in the space 39 between the members 36.

From the foregoing it will be understood that rotating the tip relative to the barrel causes the screw and its attached plunger 30 to advance or recede and if advanced to project the lead 25 outwardly through the tip in an obvious manner, the nut being fixed relative to the tip and the screw slidably but non rotatably carried by the barrel.

The disclosure is to be regarded as descriptive only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many minor modifications without departing from the general scope herein indicated and denoted in the appended claims.

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

1. A pencil comprising a barrel, a tip rotatably engaged therewith, said tip containing a chamber and an axial passage leading thereto, a tube fixed in the chamber, a nut at the upper end of said tube, a screw rotatable in said nut, said screw being slidable and non-rotatably mounted in said barrel, a guide for said screw fixed in said barrel adjacent the end of said tube and a plunger at the end of said screw operable in the passage of said tip.

2. A pencil comprising a tip element having an annular recess in its upper end and an axial passage in its lower conical end, an annular flange on said tip, a hollow cylindrical barrel abutting said flange, an internal ring formed with the barrel engaged in the recess of said tip, a nut fixed in said tip, a guide tube extending from the nut communicating with the passage in the tip, a screw operable in said nut, a plunger rod extending from said screw operable in the tip passage, and means for actuating said screw by the relative rotation of said tip and barrel.

3. A pencil comprising a hollow conical tip, a barrel nonseparably rotatable thereon, a nut fixed in said tip, a guide extending from the nut to the delivery passage of the tip, a screw operable in said nut, said screw passing through the guide, a rod on said screw operable in the tip passage, a guide for said screw fixed in said barrel, a disc rigid in the head of said screw slidable in said barrel, said disc having a pair of opposed radial slots, and guides slidably engaging the slots fixed longitudinally in said barrel.

This specification signed and witnessed this thirteenth day of May, 1921.

LOUIS V. ARONSON.

Witnesses:

FRED'K C. FISCHER,

F. NOLL.