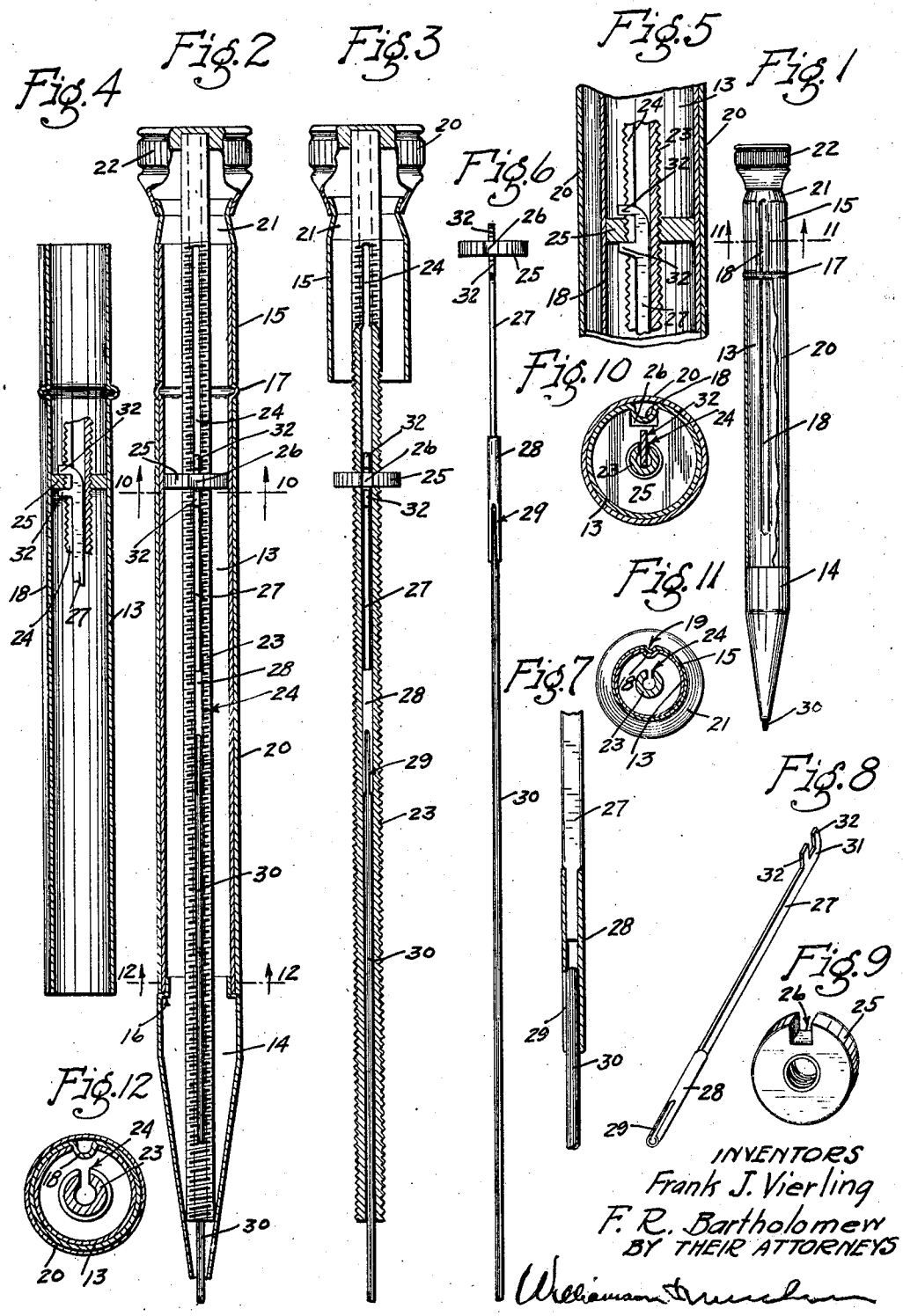
Nov. 5, 1929. F. J. VIERLING ET AL 1,734,784

PENCIL

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UNITED STATES PATENT OFFICE

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PENCIL

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Our invention has for its object to provide an extremely simple and highly efficient pencil, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:—

Fig. 1 is an elevation of the improved pencil, with some parts broken away and sectioned;

Fig. 2 is an enlarged view of the pencil, with some parts sectioned and broken away to expose the lead feeding mechanism;

Fig. 3 is a view corresponding to Fig. 2, with the exception that the parts are still further broken away and sectioned to further expose the lead feeding mechanism;

Fig. 4 is a fragmentary detail view of the casing and lead feeding mechanism;

Fig. 5 is a view similar to Fig. 4, on a further enlarged scale, but with additional parts broken away and also showing the casing applied thereto;

Fig. 6 is an elevation of the nut block, lead holder and lead;

Fig. 7 is a fragmentary detail view of the lead holder, with some parts sectioned;

Fig. 8 is a perspective view of the lead holder;

Fig. 9 is a perspective view of the nut block;

Fig. 10 is a transverse section taken on the line 10—10 of Fig. 2;

Fig. 11 is a transverse section taken on the line 11—11 of Fig. 1; and

Fig. 12 is a transverse section taken on the line 12—12 of Fig. 2.

The casing of the improved pencil includes a relatively long intermediate section 13, a point section 14, and a short top section 15 telescoped onto the upper end of the section 13. The section 14, near its upper end, is contracted to afford an annular shoulder 16 and then telescoped into the lower end of the section 13 and permanently secured thereto by any suitable means. The combined sections 13 and 14 thus form what may be termed the forward member. Obviously, the shoulder 16 limits the telescopical movement of the section 14 into the section 13, and an annular stop bead 17, outwardly pressed from the section 13, limits the telescopical movement of the section 15 thereon. As shown, an inwardly projecting guide rib 18 is pressed from the section 13, and extends substantially the full length thereof. A longitudinal bead 19 is pressed from the section 15 and fits within the rib 18 to hold said section against turning movement on the section 13. A shell 20, of leather or any other suitable material, surrounds the casing between the shoulder 16 and stop bead 17.

The only thing holding parts 15 and 13 together is a friction resulting from their engagement, said parts being in close engagement, as clearly shown in Fig. 2.

The section 15, above the section 13, is first contracted and then expanded to afford a neck 21, on which is turnably mounted a cap or head 22 that is locked to said neck against axial movement by contracting the same onto the expanded portion thereof. Extending axially through the casing is a tube 23 having a longitudinally extended slot 24, and which tube is rigidly and permanently secured to the cap 22 for turning movement therewith by pressing or otherwise securing the upper end thereof in a seat formed in said cap. The lower end of the tube 23 is seated against the contracted internal walls of the section 14 and held thereby against lateral movement, but free to turn. The member 15 with its attached parts forms what may be called a rear member. A nut block 25 has screw-threaded engagement with the tube 23 and, in the periphery thereof, is a notch 26 arranged to receive the guide rib 18 and thereby hold the nut block against turning movement in the casing, but with freedom for axial travelling movement on the tube.

Mounted in the tube 23 is a flat lead feeding bar or stem 27, on the lower end of which is permanently secured a sleeve 28 that is longitudinally slit, at its lower projecting end to form a slot or notch, as indicated at 29, to receive and yieldingly hold the upper end of a piece of lead 30. Obviously, the slot 29 permits the sleeve 28 to slightly expand when the lead 30 is forced therein to yield-

ingly hold the same. The top of the lead 30 if pushed up in sleeve 28 by the writing pressure will engage the lower end of stem 27, which will form a backing for the lead. The lower end of the lead 30 is arranged to project through the lower end of the tube 23 and the open end of the point section 14, and is guided thereby. On the upper end of the lead feeding bar 27 is a head 31 having a pair of longitudinally spaced lugs 32, which extend through the slot 24 to receive therebetween the nut block 25 to connect the lead feeding bar 27 thereto for travelling movement therewith. It will be seen that bar 27 may have some lateral or wobbling movement as it is considerably narrower than the bore of tube 23 and the slot opening into said bore as clearly shown in Figs. 3 and 10. Obviously, by holding the casing and turning the cap 22, the tube 23 may be rotated to cause the nut block 25 to travel thereon, either to project or retract the lead 30. As clearly shown in Figs. 2, 4, 5 and 10, the nut block 25 moves in contact with and is guided by the inner wall of the casing 13. This has been found to be very advantageous.

The above described invention, while extremely simple and of small cost to manufacture, has, in actual practice, proven highly efficient for the purpose had in view.

What we claim is:

1. A pencil comprising a tubular shell of substantially uniform thickness having a tapered apertured lower end with a tapered chamber therein, a removable tubular member fitting over said shell and having a threaded tube disposed within said shell having its lower end disposed within said tapered chamber and contacting the walls thereof to be positioned thereby, said threaded tube being rotatable but normally stationary longitudinally, a nut carried by said threaded tube, means for holding said nut against rotation relatively to said shell, a lead feeding bar disposed within said threaded tube and having an end portion projecting through and guided in a slot formed in said threaded tube, said lead feeding bar having a lead holding means thereon and being movable longitudinally by said nut, and means at the upper end of said tubular member for turning said threaded tube, said tubular member and last mentioned means being withdrawable rectilinearly from said shell.

2. A pencil comprising two concentric tubular members and a cap member one of which tubular members has a tapered apertured lower end with a tapered chamber therein, the second of said tubular members being longitudinally rectilinearly removable from the first mentioned member but normally longitudinally stationary relatively thereto and held thereon by friction, the cap member being rotatably mounted on the second tubular member and carrying a threaded tube which has its lower end disposed within said tapered chamber and centered by the walls thereof, the said threaded tube having a nut rotatable thereon, said nut being held from rotation in respect to said first mentioned tubular member, a lead feeding bar disposed within said nut and movable longitudinally thereby having a portion projecting and guided in a slot formed in said threaded tube and nut, said lead feeding bar having a lead holding means attached thereon at its lower end to frictionally hold the lead, the cap member constituting a means at the upper end of the pencil for turning said threaded tube in respect to the said tubular members to propel the lead through the tapered lower end.

3. A pencil comprising a tubular casing having a circumferential crimp adjacent its upper end and a longitudinal guide-rib therein, said casing having a tapered apertured lower end, a sleeve frictionally fitting over the upper end of said casing and against said circumferential crimp having an end member rotatably mounted thereon, a threaded tube secured to said rotatable end member of said sleeve and disposed in said casing and having its lower end engaging the walls of said tapered end, a nut having a slot in its side movable longitudinally of said tube, said slot fitting over said longitudinal guide rib and movable in contact with the inner wall of said casing, and lead carrying means connected to said nut for projecting and withdrawing lead through said apertured end of said casing.

4. A pencil comprising a shell, a removable tubular member longitudinally slidable over said shell and frictionally held in place thereon, a tube with threads formed in the wall thereof disposed within said shell, said tube being carried by said tubular member and being withdrawable with it rectilinearly from said shell for the purpose of loading a lead into said tube, said tube also being rotatable in said shell but normally stationary longitudinally of said shell, a lead feeding bar disposed within said tube and having an end portion projecting from said tube, and means adapted to be turned for effecting rotation of said tube relatively to said shell to propel the lead feeding bar longitudinally thereof.

5. A pencil comprising a casing, lead feeding means in said casing movable longitudinally thereof and held from rotation by said casing, a tubular member fitting over the end of said casing relatively longitudinally slidably movable in respect to said casing, and frictionally held in position thereon, a lead holding tube with threads formed in the wall thereof carried by said tubular member and removable with it from said casing, and means carried by said tube and adapted to be turned for effecting rotation of said lead holding tube relatively to said lead feeding

means to cause movement of said lead feeding means longitudinally of said first mentioned casing.

In testimony whereof we affix our signatures.

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