June 22, 1926.

1,590,126

G. T. SHELEY

SELF FEEDING PENCIL

Filed July 26, 1924

Fig. 1.

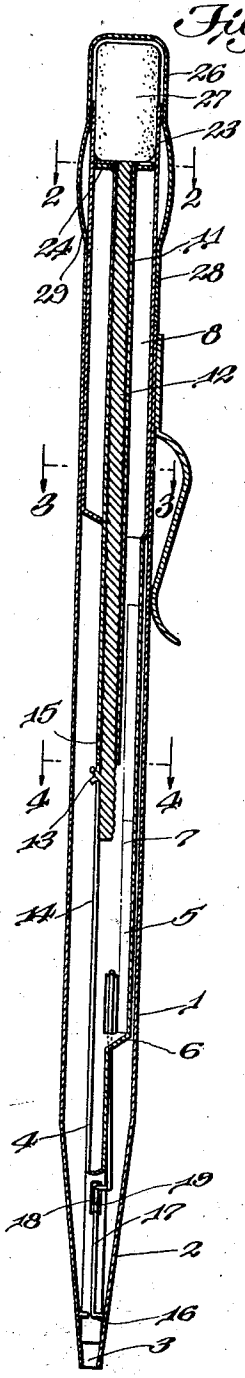


Fig. 2.

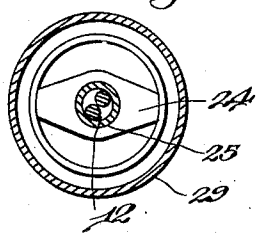


Fig. 3.

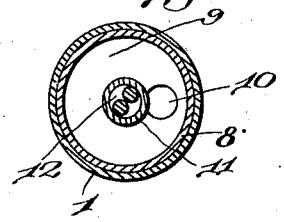


Fig. 4.

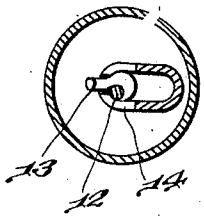


Fig. 6.

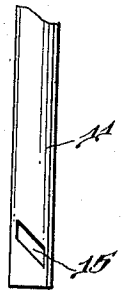


Fig. 7

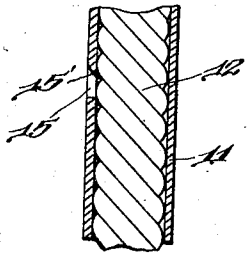
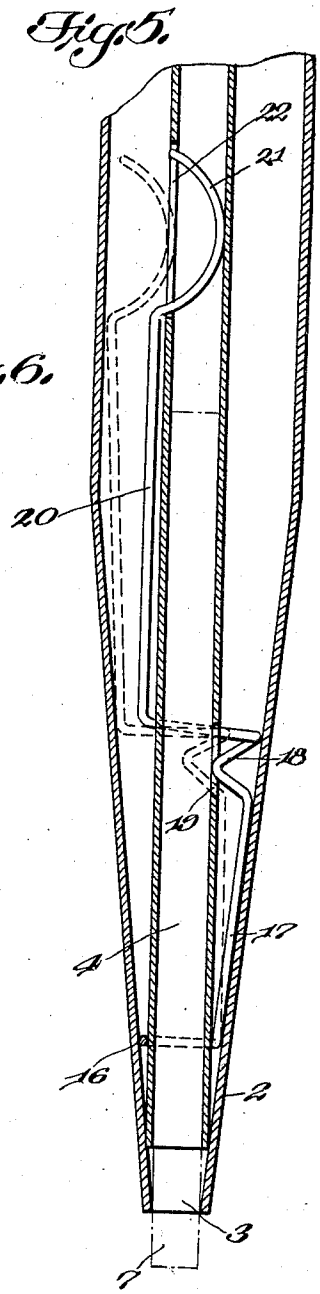


Fig. 5.



G. T. Sheley
INVENTOR

BY Victor J. Evans

ATTORNEY

Patented June 22, 1926. 1,590,126

UNITED STATES PATENT OFFICE.

GEORGE TILLMAN SHELEY, OF INDIANAPOLIS, INDIANA.

SELF-FEEDING PENCIL.

Application filed July 26, 1924. Serial No. 728,432.

This invention relates to new and useful improvements in pencils and more particularly to the magazine type. The main object of my invention is a provision of magazine type pencil wherein a plurality of leads are contained within the body of the pencil and positioned ready to be fed to the retaining point as the different leads are used or worn off.

Another object of the present invention is the provision for magazine pencil incorporated therein suitable means for normally retaining the loose leads within the magazine while the lead being used is in its operative position and so retained until after a pre-determined amount of the lead being used has been worn off at which time the retaining member will be automatically actuated for releasing one of the leads within the containing magazine.

Another object of my invention is a provision of a magazine pencil having chamber therein for containing a reserve supply of leads and so positioned with respect to the outlet channel for the leads whereby the leads contained therein will be fed into the outlet channel upon a pre-determined amount of the lead in the channel being used the leads within the retaining point will be automatically fed through the channel and manually operated means is provided for forcing the lead through the channel and projecting the outer end thereof through retaining point.

With the above and other objects in view, the invention consists in the novel features of construction, the combination and arrangement of parts hereinafter more fully set forth, pointed out in the claims and shown in the accompanying drawings, in which:

Figure 1 is a longitudinally sectional view taken through a pencil constructed in accordance with my invention,

Figure 2 is a transverse section on the line 2—2 of Figure 1,

Figure 3 is a transverse section on the line 3—3 of Figure 1,

Figure 4 is a transverse section on the line 4—4 of Figure 1,

Figure 5 is a detail enlarged longitudinal section through the delivery end of the pencil and taken at right-angles to the showing in Figure 1,

Figure 6 is a detail elevation of one end of the plunger guide, and

Figure 7 is a detail sectional view of the plunger guide illustrating the plunger in elevation therein and the manner in which the same is advanced or retracted through the guide.

In carrying out my invention I provide a tubular body member 1 having tapered end 2 forming restricted mouth portion 3. Arranged within the body 1 are the guiding and feeding tubes 5 and 4 respectively. The tube 4 constitutes the feeding tube the outer end of which extends into tapered end 2 of the body 1 to a point adjacent the restricted mouth portion 3 whereby the leads therein may be readily fed through the mouth 3 and be projected beyond the tapered end 2 ready for use.

Communication between the chamber 5 and tube 4 is readily provided by means of inclined wall 6 which is so provided as to readily guide the leads 7 contained within the tube or chamber 5, into the feeding tube 4.

The upper ends of the tube 4 and chamber 5 terminate into enlarged chamber 8 which extends out beyond the end of the body 1 and has arranged within its outer end a plate 9 having an opening 10 adjacent its center whereby the leads used in the pencil may be readily inserted within tube or chamber 5. This plate surrounds the outer end of the plunger tube 11 in which is mounted the plunger 12. The lower end of this plunger is provided with a lug 13 which is disposed within a guide slot 14 in the tube 4 to retain the plunger against rotation. The tube 11 is provided with an oblique slot 15 one of the edges of which is provided with an inwardly extending tongue 15′ disposed between the convolutions of the coil plunger 12 whereby upon rotation of the tube 11 the tongue 15′ will move in the spiral grooves from the convolutions, reciprocating the plunger within the tubes 4 and 11 in order to advance the lead toward the restricted outlet 3.

The feeding of the leads to the tube 4 is controlled by means of spring member which includes in its construction a loop 16 embracing the tube 4 at point adjacent to its outer end and extending longitudinally of the tube 4 is a spring arm 17 terminating into a V-shaped bend 18 which is movable through a slot 19 formed in the tube 4. The retaining member formed by the bend 18 extends around to the other side of the tube 4 at

right-angles and then projects longitudinally as at 20, parallel with the chamber 5 and tube 4, and is provided with a curved end portion 21 which projects in a direction directly opposite the bend 18 and is movable through a slot 22 formed in the wall of the chamber 5 so as to be moved into and out of the chamber 5. The general operation of my improved retaining member is apparent from the following:

As the lead passes through the tube 4 toward the restricted outlet 3 the lead will engage the contour of the bend 18 forcing the same outwardly through the slot 19 and arrange the same in the position shown in full lines in Figure 5, the movement will have a tendency to move the grooved end 21 inwardly toward the slot 22 and dispose the same within the chamber 5, forming suitable stop for the remaining supply of reserve leads within the chamber and preventing them from dropping downwardly onto the inclined shoulder 6. It will be apparent from the operation that after the end of the lead being used has passed the bend 18, the resiliency of the arm 17 will move the bend 18 inwardly through the slot 19 into the tube 4, the aforesaid movement withdrawing the curved end 21 through the slot 22 permitting a new lead to move downwardly through the slot the chamber 5 from whence it will be passed into the tube 4 upon striking the inclined shoulder 6 and as soon as this new lead has engaged the bend 18 the previous operation will be carried out to return the retaining member to its effective position.

Mounted above the plate 9 and disposed in alinement with the chamber 8 is a sleeve 23 which carries a plate 24 having central opening 25 to receive the upper end of the tube 11 to form a substantial guide for the same during its rotation. Mounted upon the upper end of the sleeve 23 is a closure cap 26 adapted to normally cover the eraser 27 and be readily removed when it is desired to use the eraser. It will be noted that the eraser is securely fitted within the sleeve 23.

Arranged over the chamber 8 is a sleeve 28 having tight engagement therewith and provided with a substantially, circular, bulged portion 29 which forms a suitable finger grip for rotating the sleeve 28 and as the sleeve 28 tightly engages the chamber 8 the rotation of which will impart a rotary movement to the tube 11 and reciprocate the plunger 12 within the tubes 4 and 11.

It will be apparent from the foregoing that I have provided a pencil whereby a plurality of leads may be contained within the magazine and so positioned that they may be quickly and readily fed into the feeding tube ready to be projected through restricted portion 3. It will also be apparent that automatic means are provided for normally retaining the reserve supply of leads within the chamber provided therefor, while the lead within the feeding tube is being used.

While I have shown and described the preferred embodiment of my invention, it will be understood that various changes and alterations may be made without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A pencil comprising a tubular body having a discharge opening, a guiding tube therein, a feed tube formed as a continuation of the guiding tube and having a slot therein, a spring arm having its lower end embracing the guiding tube, a V-shaped arm intermediate the ends of the arm movable through said slot, said feeding tube having a slot upon the opposite side thereof from the first slot, a curved end portion formed at the inner end of said spring arm and movable through the second slot and a plunger movable in said feeding tube as and for the purpose specified.

2. A pencil including a tubular body, a guiding tube therein, a feeding tube forming a continuation of the guiding tube and having a slot formed therein; a coil plunger movable in the feeding tube, a tongue formed on one of the edges of the slot adapted upon rotation of the feeding tube to move in curved formation by engagement with the convolutions of the plunger for reciprocating the plunger in the tubular guide.

3. A pencil including a tubular body, a guiding tube confined therein and having a slot formed therein, a feeding tube forming a continuation of the guiding tube and having a slot formed therein, a coil plunger movable in the feeding tube, means for moving said plunger, a resilient member having an end portion embracing the guiding tube and having a curved end portion adapted under certain conditions to enter the feeding tube through the slot thereof obstructing passage therethrough and having an intermediate portion normally confined within the guiding tube through the slot thereof and movable from confined position to move said curved end portion into obstructing position.

In testimony whereof I affix my signature.

GEORGE TILLMAN SHELEY.