

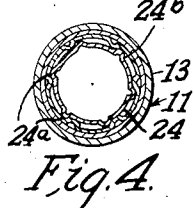
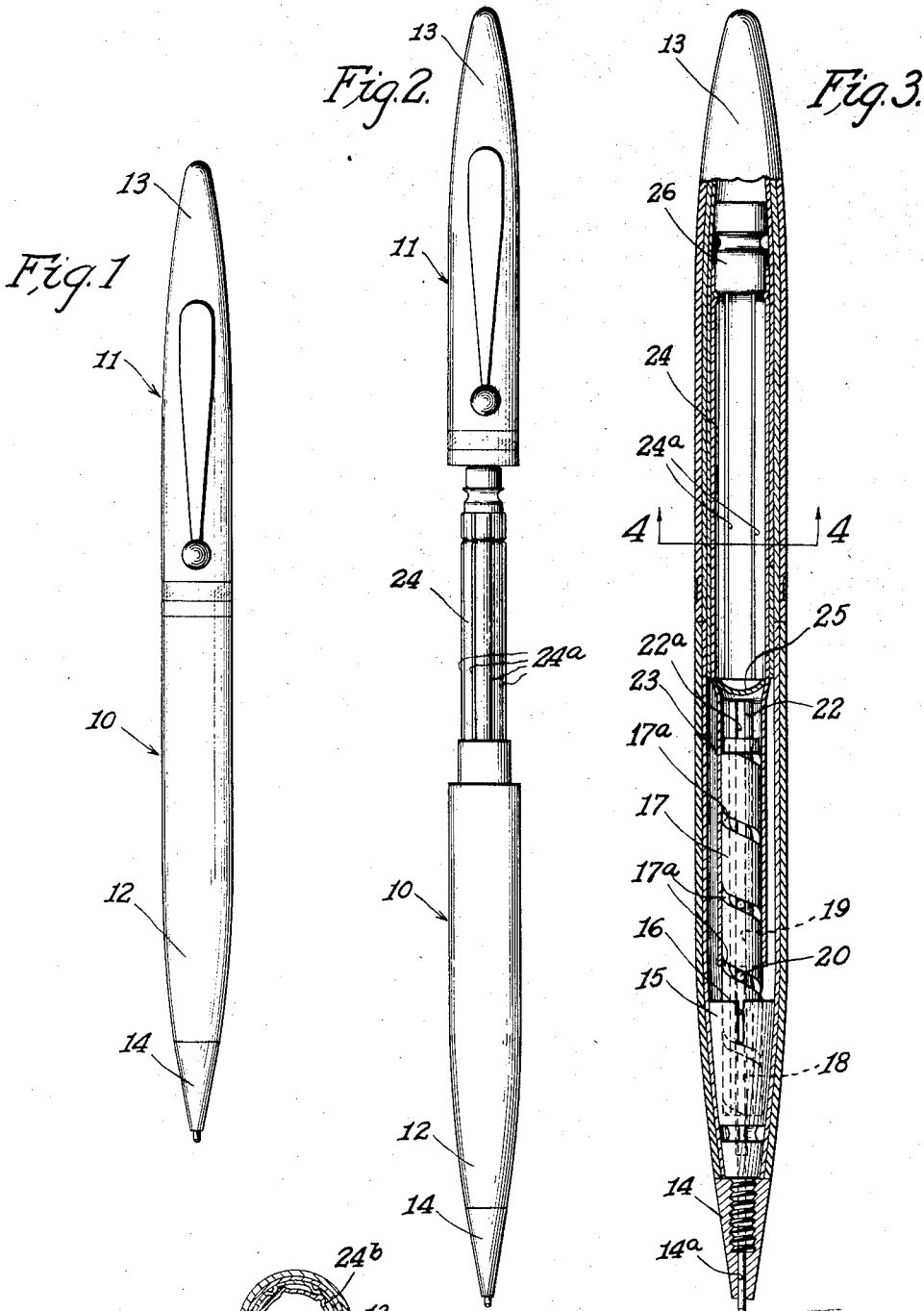
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PENCIL

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# UNITED STATES PATENT OFFICE

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## PENCIL

Application filed April 1, 1929. Serial No. 351,502.

This invention relates to a pencil and has special reference to a pencil having mechanism for propelling and repelling a lead into and out of writing position relative to the pencil barrel.

More particularly, this invention relates to a pencil having a two-part casing for enclosing a lead propelling and retracting mechanism, a substantial portion of the outer ends of the casing being tapered. The two parts of the casing meet substantially centrally of the length of the casing or a sufficient distance from either end to afford a good manual grip on either of the two parts. The ends of the pencil have been tapered to dispense with unnecessary weight thereby relieving the hand from writing tension. Also, the tapered ends move the center of gravity with respect to the location thereof in the usual type square-end pencil so that a correct balance is obtained whereby merely guidance of the pencil is necessary, substantially minimizing the necessity for support and effort in writing. It is obvious that a top heavy pencil necessitates weight to hold the pencil to the paper with the result that the fingers are cramped. The present construction eliminates the latter objection.

One member of the two-part casing houses an anchoring block in a fixed relation therewith, the other member being fixedly mounted on a portion of the propelling and repelling mechanism rotatably related with the first mentioned member of the casing and the anchoring block. The tapers on the rotatably related member, in this instance the end opposite to the writing end, are preferably curvilinear when viewed in cross section. Pencils of the usual type are ordinarily highly polished and, at best, present poor gripping surfaces, the operating end of the present type being made more difficult to grip by reason of the tapered end. However, the specific construction of the two-part casing of the pencil permits a gripping over a substantial surface by the hand of the operator and presents substantial frictional contact between the operating end part of the casing of the pencil and the lead operating mechanism thereof.

One of the objects of this invention is to provide a pencil of the type above indicated which is distinctively beautiful and embodies a perfect balance.

Another object of this invention is to provide a pencil of the character hereinbefore mentioned having a two-part casing to facilitate the operation of the mechanical features thereof.

A still further object of this invention is to provide a pencil of the type above referred to wherein substantial gripping surfaces are presented between the operating part of the two-part casing and the operating mechanism of the pencil.

Other objects and advantages will hereinafter be more particularly pointed out and for a more complete understanding of the nature, scope and characteristics of this invention, reference may be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is front elevational view of a pencil embodying the features of this invention.

Fig. 2 is an elevational view similar to Figure 1 with one portion of the two-part casing removed from the operating mechanism of the pencil.

Fig. 3 shows a longitudinal section of the pencil with parts of the mechanism in elevation.

Figure 4 is a sectional view taken on the lines 4-4 of Fig. 3.

Referring now more particularly to the drawing, the pencil embodying the invention is illustrated therein and comprises a two-part casing consisting of the portions 10 and 11. The writing end or portion 10 of the casing terminates at one of its ends in the conical shape or tapered portion 12. The operating end portion 11 terminates at one of its ends in a tapered portion 13, the tapers thereof being preferably curvilinear when viewed in a longitudinal cross section. The two-part casing is preferably built-up of an inner shell of metal and an outer shell of a plastic composition, such for example as is known in the trade as "Radite."

The tapered portion 12 is provided with a metal tip 14 having an axial opening 14a

of such contour and size in cross section as to permit the ordinary pencil lead crayon to have a free reciprocal movement there-through. The tip 14 is internally threaded for a portion adjacent the axial lead opening 14a to engage an externally threaded projecting end portion of an anchoring block 15 which is disposed in the tapered end portion 12 of the casing in a fixed relation therewith.

The two-part casing or barrel forms a housing for the reception therein of the pencil lead propelling and retracting mechanism, which is now to be described briefly, it being submitted that this mechanism is clearly shown and described in Patent Number 1,653,151, issued December 20, 1927 and assigned to the assignee of this invention.

The mechanism for propelling and retracting the pencil lead comprises the anchoring block 15, which is preferably made of aluminum in order that the pencil be light in weight. The inner portion of the anchoring block, like the main body of the pencil casing, is cylindrical and extends for a short distance to terminate in a tapered or conical shape to conform to the inside of the tapered or conical portion 12 of the casing 10. The inner end of the block has a plurality of kerfs 16, which form yieldable or resilient portions of the material therebetween which latter material normally spreads outwardly and yieldably engages the inner wall of the casing 10 thereby securing anchoring block 15 therein.

The block 15 is provided with an inner bore to receive and rigidly hold a screw sleeve 17, which latter is provided with a spirally extending slot 17a. Within the sleeve 17 is a lead socket 18 for clutching the inner end of the stick of lead at the outer end of the socket. A plunger 19 extends through the inner bore of the screw sleeve 17 and the lead socket 18 terminating within the socket at the lead receiving end and extending beyond the socket 18 at the other end of the latter. The inner end of the socket 18 is provided with a radially extending finger 20, which engages the spiral of the screw sleeve 17. The plunger 19 likewise has a radially extending arm 21 for engaging the spiral of the screw sleeve 17. Between the screw sleeve and the lead socket 18 is disposed a guide tube 22 having a longitudinally extending slot 22a through which the finger 20 and arm 21 of the socket and plunger respectively extends. This guide tube 22 prevents rotation of the plunger 19 and lead socket 18.

The screw sleeve 17 is rotatable with respect to the anchoring socket 15. A rotation of the screw sleeve permits the finger 20 and the arm 21 to ride in a longitudinal direction to propel or retract the pencil lead through the opening 14 in the tapered portion 12 of the casing 10, the plunger 19 operating to eject the lead after the socket 18 has

reached the limit of its forward movement.

The screw sleeve 17 is engaged by a reduced end portion 23 of a rotatable sleeve 24. The rotatable sleeve is provided at its end of enlarged diameter with raised longitudinally extending portions 24a for providing a frictional engagement between the operating end portion 11 and the sleeve, it being particularly pointed out that the frictional engagement extends over a substantial surface, substantially half the overall length of the pencil. The longitudinally extending raised portions 24a coact with longitudinally extending raised portions 24b of the inner metallic sleeve of the operating end portion 11 for preventing relative axial movement between the operating end portion and the rotatable sleeve 24. A disk 25 is disposed within the sleeve 24 at the junction between the enlarged and reduced end portions thereof to provide a bottom for a lead well. The eraser 26 provides the top to the well.

It has been recited that the anchoring block 15 is held in a fixed relation with the writing end casing portion 10 and that the operating end portion 11 is frictionally mounted on the sleeve 24, which latter is fixedly engaged with the screw sleeve 17. The screw sleeve 17 is, in turn, rotatable in the enlarged bore of the anchoring block 15 and the guide tube 22, about which the screw sleeve 17 rotates, is held in a fixed relation with the anchoring block 15. Therefore, when the operating end portion 11 is rotated in one direction the spiral groove of the screw sleeve 17 moves the plunger 19 and lead socket 18 in a longitudinal direction to force the lead outwardly of the casing or to retract the lead inwardly into the casing.

It will further be noted that the writing end portion and the operating end portion of the two-part casing meet substantially centrally of the length of the barrel or they may meet a substantial distance from either end to afford a good manual grip upon each of the two portions. Heretofore pencils have been made with operating end portions of a bell shape or some similar shape, which provides a head that is preferably knurled for affording a good grip surface. In eliminating this head portion and providing a tapered end portion to effect a correct balance, inventive genius has been employed in devising a means for securing a substantial gripping surface, whereby to operate the portions of the casing when it is necessary to make an erasure, to remove the lead from the lead-well in the upper end of the casing, or to operate the propelling and retracting mechanism when necessary.

While but a single embodiment of this invention is herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in

the art without departing from the spirit and scope of this invention and therefore the same is to be limited only by the scope of the prior art and the appended claims.

5 We claim:

1. A pencil comprising a two-part casing and a lead operating mechanism housed therein, said mechanism comprising relatively movable portions, one of said portions including an anchoring block fixed in one of said parts and the other of said portions including an elongated stem extending a substantial distance beyond said last mentioned part and longitudinally slidable but frictionally held against rotation in the other of said parts over the entire extending area thereof, said parts meeting substantially centrally of the overall length of said pencil.

2. A pencil comprising a two-part casing and a lead operating mechanism housed therein, said mechanism comprising relatively movable portions, one of said portions including an anchoring block fixed in one of said parts and the other of said portions including a tubular member extending a substantial distance beyond said last mentioned part for housing auxiliary leads and an eraser, the other of said parts enveloping and frictionally engaging the outer surface of said tubular member over the entire extending area thereof, said parts meeting substantially centrally of the overall length of said pencil.

3. A pencil comprising a two-part casing and a lead operating mechanism housed therein, said mechanism comprising relatively movable portions, one of said portions including an anchoring block fixed in one of said parts and the other of said portions including a tubular portion extending a substantial distance beyond said last mentioned part and having a partition on the inside thereof at a spaced distance from the end and an eraser for closing the outer end forming a compartment for auxiliary leads, the other of said parts enveloping and frictionally engaging the outer surface of said tubular portion over the entire extending surface thereof, said parts meeting substantially centrally of the overall length of said pencil.

4. A pencil comprising a two-part casing and a lead operating mechanism housed therein, said mechanism comprising relatively movable portions, one of said portions including an anchoring block fixed in one of said parts and the other of said portions including an elongated stem extending into the other of said parts substantially the entire length thereof and being slidable but frictionally held over the entire extending area thereof against rotation therein, said parts meeting substantially centrally of the overall length of said pencil.

5. A pencil comprising a two-part casing and a lead operating mechanism housed

therein, said mechanism comprising relatively movable portions, one of said portions including an anchoring block fixed in one of said parts and the other of said portions including an elongated stem extending into the other of said parts substantially the entire length thereof, said elongated stem and said last mentioned part having complementary longitudinally extending raised portions over substantially the entire areas thereof for preventing relative axial movement therebetween although permitting slidable longitudinal movement, said parts of said casing meeting substantially centrally of the overall length of said pencil.

In witness whereof, we have hereunto subscribed our names.

CRAIG R. SHEAFFER.  
WILLIAM R. CUTHBERT.

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