

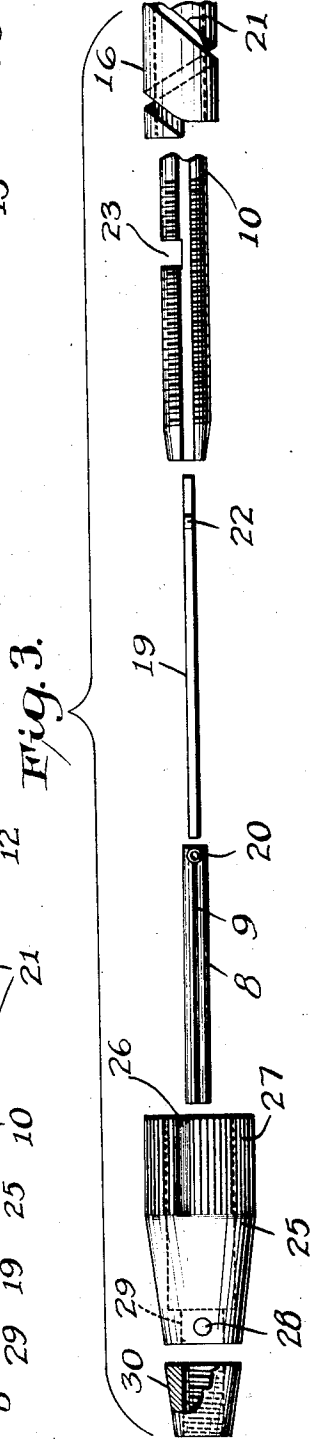
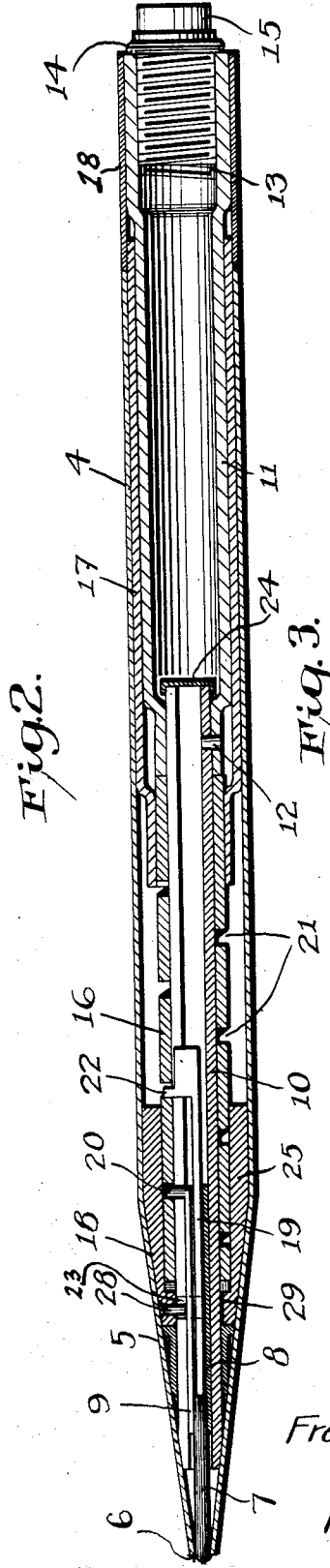
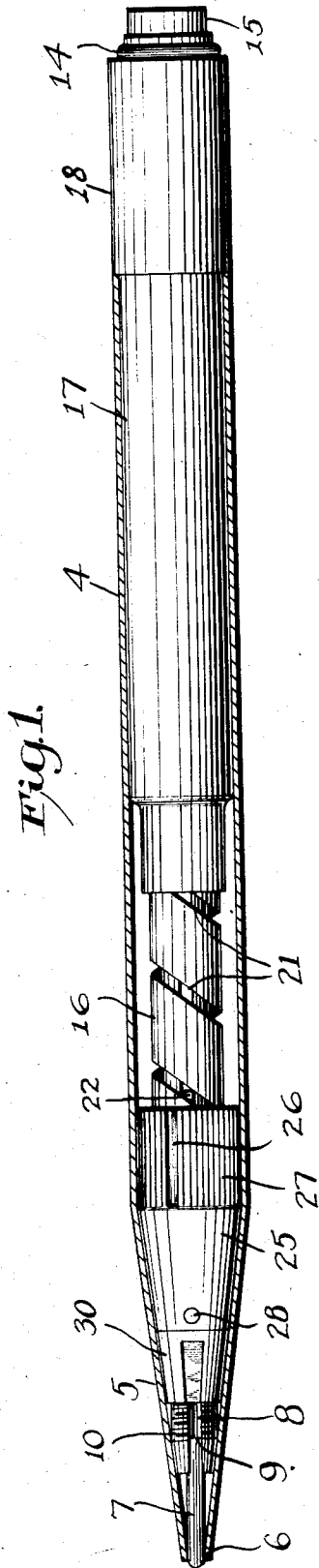
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1,551,601

F. W. HEINZMAN

MAGAZINE PENCIL

Filed Sept. 16, 1922



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# UNITED STATES PATENT OFFICE.

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## MAGAZINE PENCIL.

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*To all whom it may concern:*

Be it known that I, FREDERICK W. HEINZMAN, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Magazine Pencils, of which the following is a specification, reference being made to the accompanying drawings, forming a part thereof.

My invention relates to magazine-pencils designed to hold a plurality of reserve leads which may be taken from the magazine and brought into operative position in the pencil when desired, and also to that type in which there is also embodied in the pencil a lead-propelling and retracting movement actuated by a rotatable head on the casing body of the pencil.

The objects of my invention are, among other things, to provide a simple, compact and efficient pencil of this character having a minimum of working parts which are also capable of ready detachability from one another so that such working parts comprising the movement may be disassembled by the user and new parts may easily be replaced should any of such parts become worn or broken, coupled with means to adjust the tension between the lead carrier and the spirally-grooved tube or feed operating member so that the lead along with its carrier when advanced into operative position may not be pushed back into the casing by pressure on the lead point when in use. Another object of my invention is to provide a removable eraser cap mounted upon a stationary part of the pencil which cap acts to hold the reserve leads in the magazine.

Other and further improvements and advantages will be hereinafter set forth and particularly pointed out in the appended claims.

A preferred embodiment of my invention is illustrated in the accompanying drawings in which—

Fig. 1 is a side view partly in section showing the arrangement of the parts comprising the movement;

Fig. 2 is a longitudinal sectional view of the pencil; and

Fig. 3 is a composite side view of various parts of the movement showing their relationship when disassembled.

Similar numerals refer to similar parts throughout the several figures.

Referring to Figs. 1 and 2, the outer casing 4 constitutes the cylindrical body of the pencil having the conical nozzle 5 terminating in the opening 6 through which the lead 7 projects when advanced into operative position by the propelling movement. The lead 7 is held in the lead carrier 8 longitudinally slotted at 9, such carrier 8 sliding freely in the exteriorly threaded guide tube 10 which is longitudinally slotted in the usual manner. The guide tube 10 is secured to the magazine barrel 11 by the pin 12 as shown in Fig. 2, such barrel being adapted to hold the reserve leads (not shown). The upper end of the barrel is interiorly threaded at 13 to hold the cap 14 to which is affixed the eraser 15. Surrounding the guide-tube 10 is the spirally grooved tube or feed operating member 16 which is crimped at its upper end to the cylindrical sleeve 17 which encircles the barrel 11 inside the casing 4; the outer end of the sleeve 17 carries the operating head 18, all as shown in Fig. 2. Within the lead carrier 8 is the sliding ejector pin 19 having its forward end bearing against the rear end of the lead 7 as shown in Fig. 2. To the inner end of the lead carrier 8 is affixed the stud 20 which projects through the slotted guide tube 10 and engages the spiral groove 21 in the tube 16; the ejector pin 19 also carries its separate stud 22 which also passes through the slotted guide tube 10 and engages the groove 21 in the tube 16 as shown in Fig. 2. Axial rotary movement between the guide tube 10 and the spirally grooved tube 16 relatively to each other will cause the lead carrier 8 and ejector pin 19 to advance or retract within the casing 4 in the usual manner according to the direction of rotation. The guide tube 10 has the notch 23 cut therein (Fig. 3) into which the stud 20 falls to act as a stop to prevent undue advancement of the lead carrier 8 and also to enable the ejector pin 19 to further advance through the carrier 8 to force the stud end of the lead 7 from the carrier. The outer end of the guide tube 10 carries the cap 24 to prevent any of the reserve leads carried in the barrel 11 from being broken by falling into the open end of the tube 10.

To enable these operative parts of the lead propelling and ejecting movement to

be held in position as well as to be readily disassembled, I have provided the following mechanism: Sliding over the outer end of the tube 10 is the clutch 25 having its base split at 26 and outwardly knurled at 27 to form a close fit within the casing 4 and the clutch 25 is held to such casing 4. The outer end of the bore of the clutch 25 carries the inwardly projecting pin 28 which engages the notch 23 (Fig. 3) in the tip of the tube 10 when the clutch is pressed down on the tube 10 to lock the clutch 25 with the tube 16. The nut 30 is screwed on the threaded end of the tube 10 to hold the clutch 25 in position with the tube 16 against the shoulder 29. This nut 30 when screwed further down on the tube 10 forces the clutch 25 inwardly and thereby compresses the spirally grooved tube 16 affixed to the barrel 11. Such compression serves to lessen the width of the spiral grooves 21 and so increase their frictional grip on the stud 20 of the lead carrier 8 to prevent the retraction of the lead when pressure is exerted thereon in use. The nut 30 therefore performs the double function not only of holding the operative parts of the movement in position, but also to provide an adjusting means for regulating the tension between the lead carrier 8 and the propelling tube 16 in their frictional engagement with each other.

When it becomes necessary or desirable to replace any of the working parts of the lead-actuating mechanism before described, the movement proper is taken out of the casing 4 and the nut 30 is unscrewed from the tube 10 so that the clutch 25 may be removed from the lower end of the tube 16. Relative rotation between the two tubes 10 and 16 will advance the carrier 8 and ejector pin 19 so that their respective studs 20 and 22 will emerge from engagement with the lower end of the spiral groove 21, and the parts may be separated as shown in Fig. 3. Upon reassembling the stud 22 first engages with the spiral groove 21 and upon the next revolution of the tube 16 with the stud 20 so that the spaced relationship shown in Fig. 2 may be maintained. The clutch 25 is then forced down on the tube 10 and rotated until the pin 28 enters into the notch 23; thereafter the nut 30 is screwed down on the end of the tube 10 and holds the clutch 25 in operative position against the outer end of the propelling tube 16.

I have shown and described a preferred and satisfactory embodiment of my invention, but various changes and modifications may be made in the construction of the details without departing from the principle and scope thereof as defined in the appended claims.

I claim as my invention:

1. In a pencil, an outer casing, a lead-propelling movement comprising operative

members all carried within the casing and all separable therefrom, and separate means carried within the writing point of the casing and rotatable relatively thereto for locking said members as a unit in operative position.

2. In a pencil, an outer casing, a lead-propelling movement comprising separable operative members carried within the casing, rotatable means carried within the writing point of the casing for locking said members as a unit in operative position, and means for varying the tension of said locking means.

3. In a pencil, an outer casing, a lead-propelling movement comprising operative members all carried within the casing and all separable therefrom, and a separate locking clutch carried within the writing point of the casing by one of said members and bearing against another member for removably holding said members as a unit in operative position.

4. In a pencil, an outer casing, a lead-propelling movement comprising separable operative members carried within the casing, a rotatable locking clutch carried within the writing point of the casing by one of said members for removably holding said members as a unit in operative position, and means for varying the tension of said clutch on said member.

5. In a pencil, a lead-propelling movement comprising a lead carrier, a straight slotted guide tube containing said carrier and a spirally-grooved propelling tube rotatable on the guide tube, all said members being detachably secured to one another, a clutch slidable on said guide tube to compress said propelling tube, and detachable means rotatable relatively to said clutch for forcing the latter against said propelling tube whereby said members as a unit are held in operative position.

6. In a pencil, a lead-propelling movement comprising a lead carrier, a straight slotted guide tube containing said carrier and a spirally-grooved propelling tube rotatable on the guide tube, all said members being detachably secured to one another, and means for removably and adjustably holding said members in operative position under variable tension.

7. In a pencil, a lead-propelling movement comprising a lead carrier, a straight slotted guide tube containing said carrier and a spirally-grooved propelling tube rotatable on the guide tube, all said members being detachably secured to one another, and means comprising a clutch slidable on said guide tube and engaging said propelling tube for removably holding said members in operative position.

8. In a pencil, a lead-propelling movement comprising a lead carrier, a straight slotted

- guide tube containing said carrier and a spirally-grooved propelling tube rotatable on the guide tube, all said members being detachably secured to one another, and means comprising a clutch slidable on said guide tube and engaging said propelling tube for removably and adjustably holding said members in operative position under variable tension.
9. In a pencil, a lead-propelling movement comprising a lead carrier and an ejector pin within said carrier, a straight slotted guide tube containing said carrier and ejector pin and a spirally-grooved propelling tube rotatable on said guide tube, separate means on said carrier and pin engaging both said tubes, all said members being detachably secured to one another, a clutch slidable on said guide tube to engage the outer end of said propelling tube, and means for forcing said clutch against said propelling tube.
10. In a pencil, a lead-propelling movement comprising a lead carrier and an ejector pin within said carrier, a straight slotted guide tube containing said carrier and ejector pin and a spirally-grooved propelling tube rotatable on said guide tube, separate means on said carrier and pin engaging both said tubes, all said members being detachably secured to one another, a clutch slidable on said guide tube to engage the outer end of said propelling tube, and means for forcing said clutch with variable pressure against said propelling tube.
11. In a pencil, a lead-propelling movement comprising a lead carrier and an ejector pin within said carrier, a straight slotted guide tube containing said carrier and ejector pin and a spirally-grooved propelling tube rotatable on said guide tube, separate means on said carrier and pin engaging both said tubes, all said members being detachably secured to one another, a clutch slidable on said guide tube to engage the outer end of said propelling tube, and a screw-nut threaded on said guide tube for forcing said clutch with variable pressure against said propelling tube.
12. In a pencil, a lead carrier, a spirally grooved propelling tube surrounding said carrier, means on said carrier slidable in said spiral groove to advance or retract said carrier, and means to compress the spiral groove in said tube on said carrier means.
13. In a pencil, a lead carrier, a straight slotted guide tube containing said carrier, a spirally-grooved propelling tube rotatable on said guide tube, a stud on said carrier projecting through said guide tube and engaging said spiral groove, and means on said guide tube to longitudinally compress said propelling tube relatively to said guide tube to increase the frictional engagement between said stud and said groove.
14. In a pencil, a lead carrier, a straight slotted guide tube containing said carrier, a spirally-grooved propelling tube rotatable on said guide tube, a stud on said carrier projecting through said guide tube and engaging said spiral groove, and a screw-nut on said guide tube to longitudinally and variably compress said propelling tube relatively to said guide tube to increase the frictional engagement between said stud and said groove.

FREDERICK W. HEINZMAN.