

Feb. 23, 1932.

W. T. MALONEY

1,846,604

MAGAZINE PENCIL

Filed Aug. 5, 1925

2 Sheets-Sheet 1

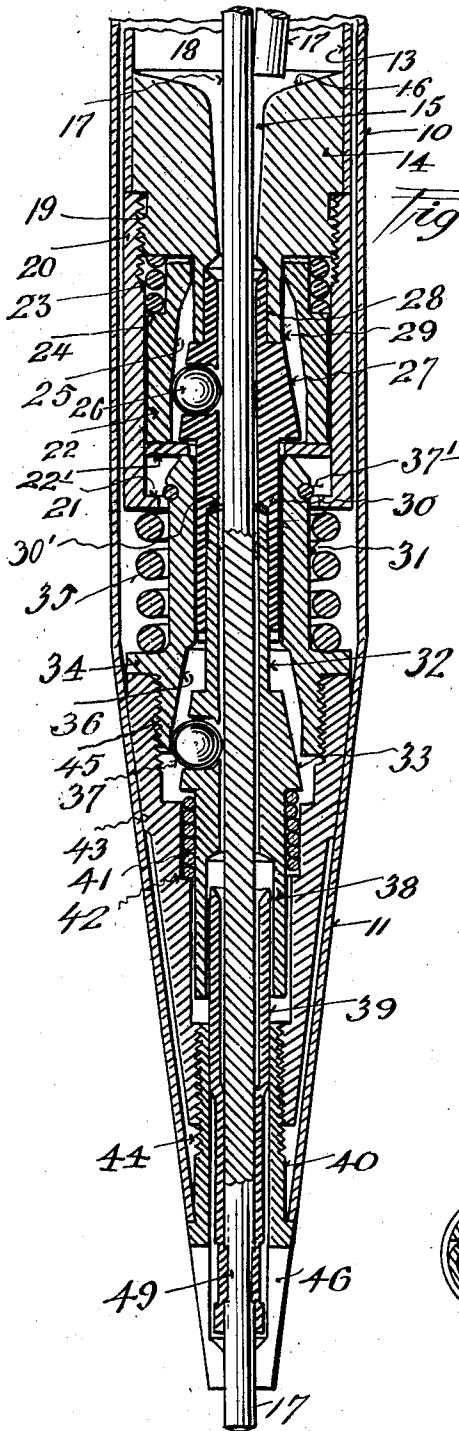


Fig. 1.

Fig. 2

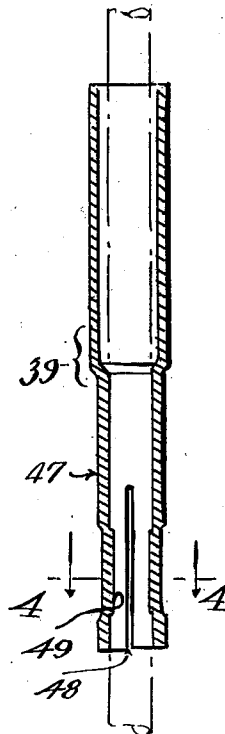
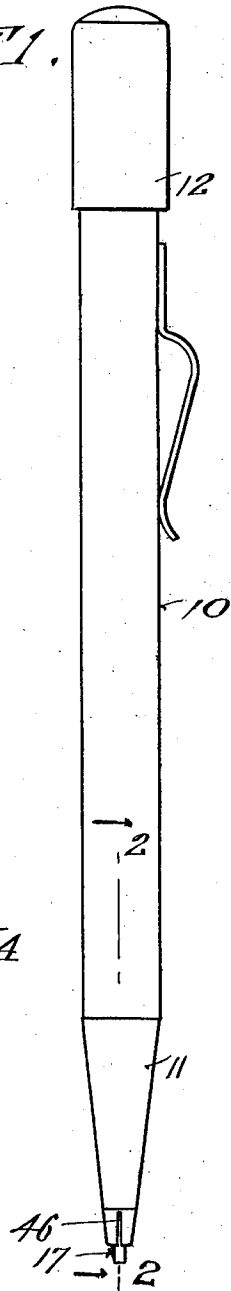


Fig. 3



Fig. 4.



Inventor  
William G. Maloney  
By his Attorneys Darcy & Darcy

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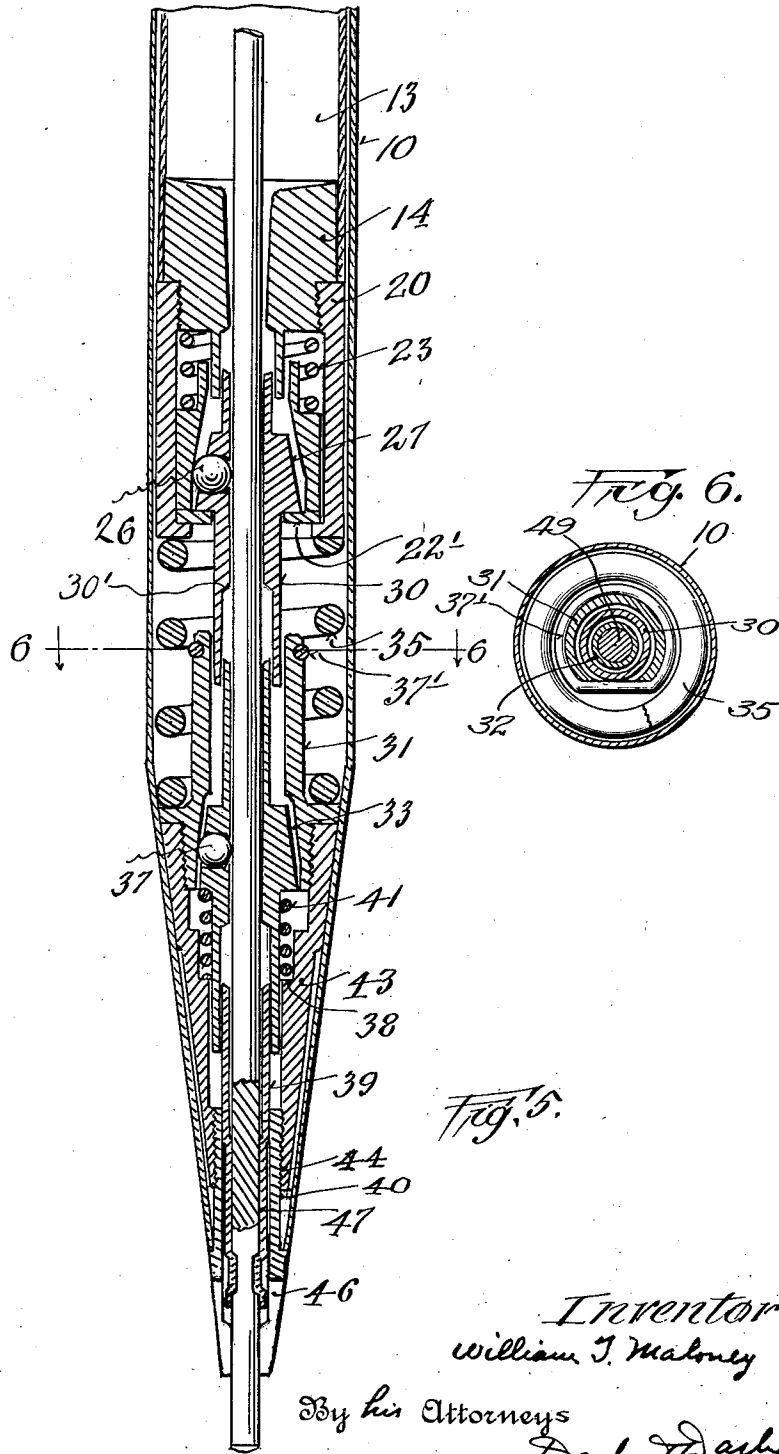
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# UNITED STATES PATENT OFFICE

WILLIAM T. MALONEY, OF JERSEY CITY, NEW JERSEY

## MAGAZINE PENCIL

Application filed August 5, 1925. Serial No. 48,212.

This invention relates to magazine pencils of the double lock type, that is, means are provided for gripping and holding the lead at a plurality of points, which means are operable for advancing the lead and then locking the same firmly in proper advanced position. I further so arrange the locking means that the same is reciprocable for advancing the lead and releasable for permitting free adjustment of the lead just prior to locking. A further object of my invention includes a construction for guiding and protecting the lead and by which it is firmly held against rotation or backsliding while writing. I further provide a construction which is readily assembled, easy to operate and wherein the lead is automatically renewed while there is a supply in the magazine.

Other objects will appear hereinafter, and I attain these objects by the construction shown in the accompanying drawings, in which:—

Fig. 1 is a view of a pencil embodying my invention.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1 and showing the relation of the operating parts when the cap is depressed and the locking action of both lock members is in forward or released position.

Fig. 3 is an enlarged view of the lead guide and holder.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a longitudinal section similar to that of Fig. 2 with the parts in normal or writing position; and Fig. 6 is a cross-section along the line 6—6 of Fig. 5 looking in the direction of the arrows.

Like numerals refer to similar parts throughout the several views.

It is among the prime purposes of my invention to provide a self-loading double locking pencil which is readily assembled, easily operated, and wherein the several locking members are caused to act independently for temporarily releasing the lead for readjustment. Further the operative mechanism is confined to the tip end of the pencil, thus providing for large lead storage. In the accompanying drawings I have illustrated a spe-

cific embodiment of my invention as applied to a magazine pencil wherein the outer cylindrical casing 10 terminates in a conical tip 11 which tip carries the main part of the operating mechanism. The other end of casing 10 is provided with a cap 12 to which the inner shell 13 is attached, in any desired manner. To the lower part of the inner shell 13 is attached the lead guide or block member 14 having a central bore 15 and a sloping mouth 16 for guiding and feeding the leads 17 from the magazine space 18 located between the cap 12 and block member 14. The lower end of the block member is reduced and threaded exteriorly at 19 to receive the thimble 20. This thimble is provided with a ledge 21 for limiting the movement of the inner or cam thimble 22, which is provided with an expansion spring 23 in recess 24 and a cam surface 25 for engaging the lead-locking balls 26, of which there are preferably three, arranged in a circle in head 27. This head is provided with an extension 28, which slidably engages the depending ring 29 of the block member 14. Said head is further provided with a depending hollow stem 30 which slidably receives the control sleeve 31 on its exterior surface, and the hollow stem 32 on its inner surface. Hollow stem 30 is also provided near its upper end with an internal shoulder 30' which is normally spaced apart from the end of stem 32, but which will engage said end when the stem has moved downward sufficiently to cause said end to also move downwardly and thus open the lower head 33. Stem 32 is provided with a head 33 in which are carried the holding balls 37. For convenience I will designate head 27 as the lead feeding head and head 33 as the lead holding head.

The control sleeve 31 is provided with a skirt or ledge 34 on which is seated the expansion spring 35 for returning the parts to their normal position. This sleeve is also provided with a cam surface 36 against which press the lead holding balls 37 for holding the lead. The control sleeve 31 is further provided with a retarding spring 37' which frictionally engages stem 30 and temporarily retards the movement of head 27 as is explained more fully below. The lead

holding head 33 is also provided with a hollow depending stem 38 into which extends the enlarged portion of the lead guiding and holding tube 39. This tube is frictionally held in position in the pencil tip 40. Stem 38 is further provided with a spring 41, which is seated in recess 42 of the tip block 43 and serves to return and hold the head 33 in lead holding position. It will be noted that the tip block is securely held seated in the conical end 11 of the outer shell 10 because screw threads 44 of the anchor piece 40 which engage the adjacent screw threads in the tip block 43, hold the block in position. The pencil tip is formed by the split parts 46 of the anchor piece to thereby firmly grip the lead. It will be also noted that the upper end of block 43 is also provided with screw threads 45 for securing the control ring 31 thereto.

From Figs. 3 and 4 it will be seen that the upper part of the lead tube 39 is slightly larger than the lead, thereby providing for free movement of the lead in this part of the guide tube. From this portion the tube tapers down to approximately the size of the lead and forms the holding portion 47. The tip end of the holding part of the tube is provided with slots 48 oppositely disposed and with longitudinal cuts to form sharp edged projections 49 which extend into the path of the lead from substantially opposite sides and approximately midway between the slots 48. This construction provides a most effective yet simple lead guide and lead holder, whereby the leads are resiliently gripped and firmly held while the pencil is used.

The operation of my improved pencil will be readily understood. Leads are placed in the magazine. A slight shake of the pencil when held in vertical position with the tip down will cause the end of a lead to drop into the mouth 16 and the cone shaped bore 15 of the lead guide or block member 14. If now the cap 12 is depressed, the operative parts of the pencil will take substantially the positions shown in Fig. 2. Assuming now that the first lead has been fed down through the ball clutch in heads 27 and 33 and into the guiding end of tube 39. If now the pressure on the cap is released, spring 35 will exert its influence and as the lead feeding head 27 and associated parts are moved to normal position, spring 41, will cause the holding head 33 to carry the clutch balls into lead engaging position to hold the lead while the feeding head is moved into normal position (see Fig. 5). When now the cap and connected inner shell and the parts carried thereby are depressed or moved towards the tip block and its associated parts, stem 30 is momentarily withheld from advancing by the frictional engagement of spring 37<sup>1</sup> until balls 26 in the feeding head

27 have engaged the lead sufficiently to overcome the frictional resistance of spring 37<sup>1</sup>. The feeding head 27 and its stem 30, will then advance carrying the lead with it and feed it through the holding head 33 the clutch balls of which are then in released position, since shoulder 30' has now been brought into engagement with stem 32 and has caused the stem to move downwardly, as indicated in Fig. 2. After lead has been fed the length of the stroke and pressure on the cap is released as before, friction spring 37<sup>1</sup> will again function temporarily to withhold the feeding head from movement until washer 22<sup>1</sup> engages the shoulder of head 27 and carries it along together with the thimbles and associated parts back to normal position. There will, therefore, be a position in the operation of the pencil when holding head 33 is in released position and feeding head 27 is also held open by spring 37' and the lead, consequently, free to be manually moved in or out without the assistance of the feeding mechanism. This will occur, obviously, during the initial part of the return movement of the mechanism towards its normal position. Repeated reciprocal movements of the cap and parts as explained above will therefore cause the lead to advance when the feeding head 27 is depressed to be engaged and held by the holding head 33, the holding projection 49 on tube 39 and the split parts 46 of the anchor tip.

I claim:

1. A magazine pencil comprising an inner barrel and an outer barrel arranged concentrically to reciprocate one within the other, a cap on the outer end of said inner barrel and a lead guide on the inner end of said inner barrel, said lead guide having a funneled perforation to direct the leads, a clutch member on the inner end of the inner barrel and means to hold said clutch member in lead receiving position when the inner barrel is retracted with respect to the outer barrel, a second clutch member slidably connected with said first named clutch member, and means carried by said outer barrel for operating the second clutch member to engage and hold leads received from the first named clutch member.

2. In a magazine self-leading pencil, a lead guiding and holding member comprising an anchor piece secured in the pencil tip and having a bore therethrough, a lead guiding and lead holding tube frictionally engaging said anchor piece, said tube having an enlarged lead receiving part and a slitted resilient lead engaging part having sharp edged projections extending into the path of the lead for cutting into the lead as the lead is projected through the guiding and holding tube.

3. In a magazine pencil, a lead guide block

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and a relatively movable pencil tip block, a resilient member to hold said blocks spaced apart, a clutch member in the guide block, a hollowed out tubular extension carried by said clutch member, a second clutch member in the tip block, a hollowed out tubular extension carried by said second clutch member and slidably disposed within the tubular extension carried by said first named clutch member.

4. In a magazine pencil, a lead guide block having a hollowed out cam surfaced portion and a relatively movable pencil tip block having a hollowed out cam surfaced portion, a resilient member to hold said blocks spaced apart, a ball carrying clutch member adapted for coactuation with the hollowed out cam surfaced portion of said guide block disposed in said guide block, a hollowed out tubular extension carried by said clutch member, a second ball carrying clutch member adapted for coactuation with the hollowed out cam surfaced portion of said tip block disposed in said tip block, a hollowed out tubular extension carried by said second clutch member and slidably disposed within the tubular extension carried by said first named clutch member.

5. In a magazine pencil, a lead guide block having a hollowed out cam surfaced portion and a relatively movable pencil tip block having a hollowed out cam surfaced portion, a resilient member to hold said blocks spaced apart, a ball carrying clutch member adapted for coactuation with the hollowed out cam surfaced portion of said guide block disposed in said guide block, a hollowed out tubular extension having a shoulder therein, carried by said clutch member, means disposed on said guide block for limiting the movement of said clutch member with respect to said guide block, a second ball carrying clutch member adapted for coactuation with the hollowed out cam surfaced portion of said tip block disposed in said tip block, a hollowed out tubular extension carried by said second clutch member and slidably disposed within the tubular extension carried by said first named clutch member and adapted to work against the shoulder disposed therewithin.

In testimony whereof I have hereunto set my hand on this 20th day of February, A. D., 1925.

WILLIAM T. MALONEY.