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MAGAZINE PENCIL

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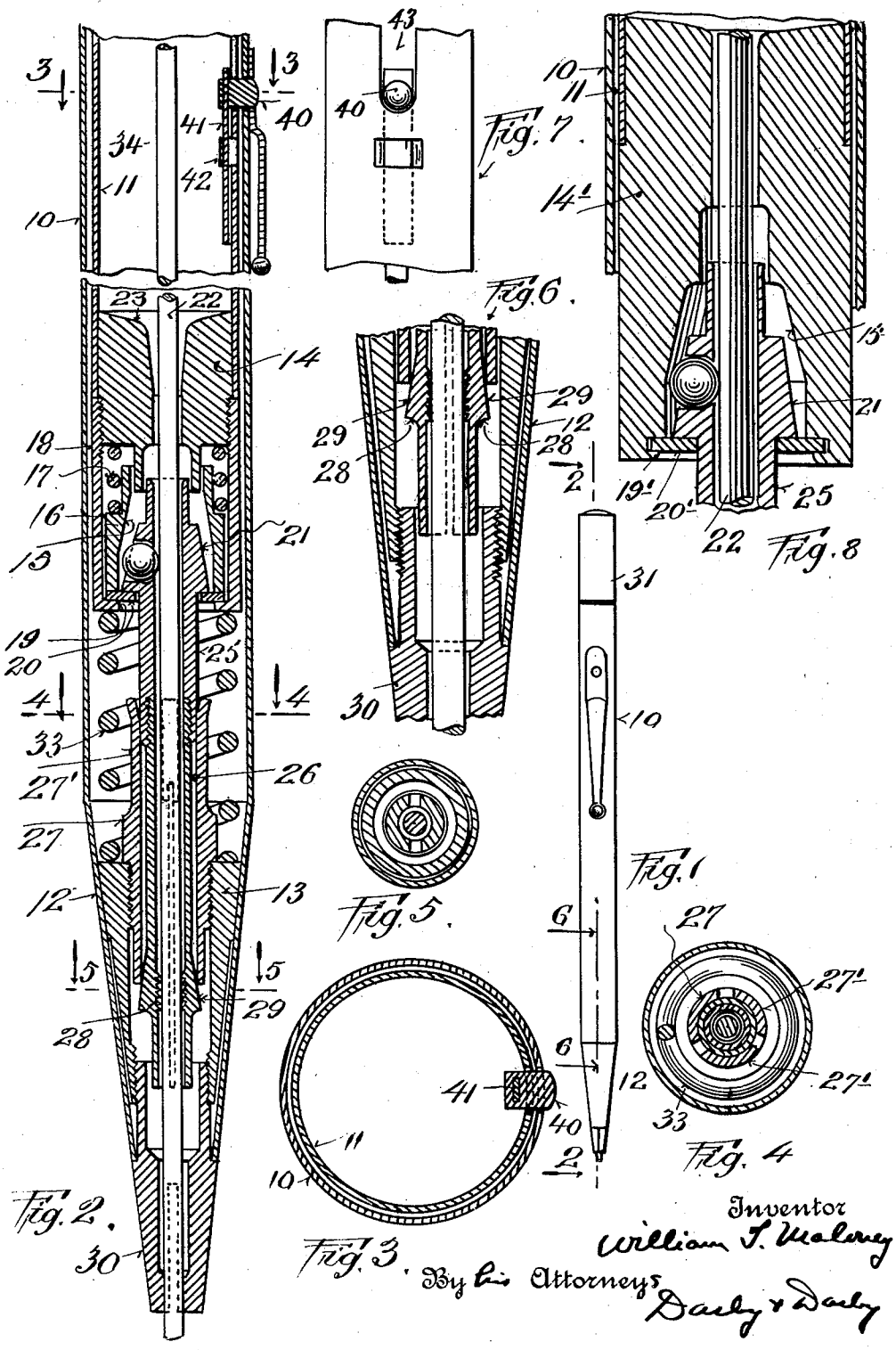

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UNITED STATES PATENT OFFICE

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MAGAZINE PENCIL

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This invention relates to improvements in magazine pencils and in particular to the lead feed and holding mechanism for such pencils.

Among the objects of my invention is the production of a magazine pencil that is simple in construction, efficient in operation, positive in action and inexpensive to manufacture. A further object includes the provision of a simple and effective lead grip and lock which coacts with an effective lead feed. I also provide a catch for locking the concentric pencil barrels together and to thereby hold the parts of the pencil assembled.

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

Fig. 1 is a general view of the pencil.

Fig. 2 is a longitudinal section of the top end of the pencil showing the operating mechanism.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is a section taken on the line 4—4 of Fig. 2.

Fig. 5 is a section taken on the line 5—5 of Fig. 2.

Fig. 6 is a view taken on the line 6—6 of Fig. 1.

Fig. 7 is a plan view of the barrel lock.

Fig. 8 is a modification of the guide block and locking mechanism.

Like numerals refer to similar parts throughout the several views.

The desirability of an efficient, automatic lead feeding and lead locking construction for magazine pencils is well recognized, and my improved pencil is designed to fill this need. The pencil herein disclosed exemplifies my invention and illustrates the principles thereof in a practical application, in which I provide outer and inner barrels relatively movable. The outer barrel 10 has a tapered extension 12, hereafter called the tip which contains the tip-block 13 and associated parts. The inner barrel 11 is converted into a magazine for leads by the provision of a block 14 secured in its lower end and hereafter called the feed-block. The feed-block is perforated through the center to form a passage for the lead 22 and the upper surface 23 is concave to guide the leads into the opening of the passage.

In the modification shown in Fig. 8 the feed-block 14′ is counterbored from below to produce the tapered clamping surface 15. In this construction the head of the floating ball clutch 21 is secured in block 14′ by washer 20′ which is held by the upset part 19′. In the preferred form shown in Fig. 2, the clamping surface 15 is on a separate part 16 of the feed block loosely retained in spaced relation to the remaining upper portion by the flanged thimble 18 which is secured to said upper portion by screw-threads. The member 16 is urged to a seat on the flanges 19 of the thimble by a coiled spring 17 inserted between the upper portion of the feed block and a shoulder on the outer periphery of the member 16. The feed block is further provided with a cup shaped concentric projection the outer wall of which serves as a guide for the upper end of member 16 and the inner wall of which serves as a guide for a ball clutch member later to be described. The member 16 is itself provided at its lower end with an inwardly projecting flange 20 for a purpose to be disclosed hereafter.

The outer barrel 10 terminates in a tapered portion 12 in which is secured the tip block 13 by means of a screw threaded extension on the tip or anchor block 30. This block is provided with a central bore which, near the tip end, is substantially the size of the lead to thus frictionally engage the same. To allow for differences in the diameters of leads the tip end of said anchor block is split as is shown by the dotted line in Fig. 2 or the full line in Fig. 1. The upper end of the bore in the tip block 13 is provided with screw threads which engage the threads on the outer surface of member 27. This member is provided with a lower extension which engages the cam surfaces 29 of lead holding jaw members 28 so that the teeth of said jaw members will engage and firmly hold the lead in position for writing as will be explained more fully hereinafter.

The upper portion of member 27 terminates in resilient fingers 27′ which receive the stem 25 of the floating ball-clutch member 21. The head of said floating clutch member engages the flange 20 of the cam member 16 so as to be carried with it as the spring 33 expands to move the thimble 18, block 14, inner barrel 11 and the cap 31 back to normal position in readiness to engage and advance a lead when the cap 31, barrel 11 and associated parts are depressed.

It will be noted that stem 25 of the floating clutch member is united with the tubular member 26. Extending from member 26 are the holding jaw members 28 which tend to open when disengaged from the skirt extension of member 27 and are closed upon the lead when the cam surfaces 29 engage the skirt as will be readily understood.

From the above disclosure the operation of my improved pencil will be readily understood. With lead ends in the magazine 34 the pencil is held vertically to permit a lead 22 to drop into the feed-block 14 down through the floating ball clutch member 21 and stem 25 into the gripping jaws 28 (which will open when the cap 31 is depressed) and through the large bore in the anchor block 30. The ball clutch member now becomes effective because the clutch balls will engage the clamping surface 15 and grip the lead to push it forward into the split tip of the anchor block 30, where it is held while the spring 33 returns the feed block 14 and associated parts, including the clutch head 21 and the lead holding jaws 18 with the intermediate connection. With each successive depression of the cap and associated parts the lead is advanced to new positions. From this construction it will be apparent that while the clutch head is carried upward, and before the gripping balls engage the clamping surface, the lead will be held frictionally by the tip 30 and it is therefore free to be moved in either direction and can accordingly be readily readjusted to proper writing positions.

It will be noted that the construction is simple and that the parts are readily assembled by uniting the few screw-threaded members as shown.

I have also devised a simple barrel locking device which holds the barrels together.

This lock comprises a button 40 and a clip 41, which clip is slidingly held in the band 42 which is struck from the inner barrel 11. A slot 43 in barrel 11 permits relative movement of said barrels 10 and 11.

While I have described a specific embodiment of my invention, I do not thereby desire to be limited unduly, as various modifications falling wholly within the spirit and scope of my invention will no doubt present themselves to those versed in the art.

What I claim, therefore, as new and useful, of my own invention, and desire to secure by Letters Patent, is:—

1. In a magazine pencil, lead feeding and lead holding means comprising a tubular member having at one end a floating clutch member to engage a lead and feed it forward when said tubular member is reciprocated towards the tip of said pencil, means to reciprocate said tubular member, a lead holding jaw on the other end of said tubular member and means for closing said lead holding jaws on the lead to secure the same in its advanced position.

2. In a magazine pencil having an inner and an outer barrel, a feed-block on the end of said inner barrel to form therewith a magazine from which leads are fed consecutively, a lead feeding head movably held in said feed-block, said head having lead gripping means and a hollow stem, a cam bearing member carried by said feed-block and movable therewith for engaging the lead gripping means when the cam bearing member is moved in the lead feeding direction, resilient clamping jaws carried by said hollow stem, means for reciprocating said stem and jaws, and a member with which said jaws engage to hold said leads for writing.

3. In a magazine pencil, a pair of relatively movable barrels disposed concentrically one within the other, a feed-block on one of said barrels, said feed-block having a bore therethrough and a cam surface therein, a lead gripping clutch including a head movably held in said feed-block, a ring member carried by said feed-block for limiting the movement of said head, means for retarding the motion of the head so that motion of the feed block in the forward direction causes the clutch to grip and motion of the feed block rearwardly causes the release of the clutch, a pair of clamping jaws connected to said lead gripping head and movable therewith, and means for holding said jaws in lead engaging position when the lead gripping head clutch is released.

4. In a magazine pencil, lead feeding and lead holding means comprising a tubular member having at one end a floating clutch member and at the other end lead biting members with outer cam surfaces, means with which said cam surfaces engage to close the lead biting members, and a longitudinal reciprocating cam member surrounding said floating clutch member and engaging therewith when the cam member is propelled in lead advancing direction.

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

WILLIAM T. MALONEY.