March 15, 1932. J. M. ANGELETTI 1,849,997

SELF FEED MAGAZINE PENCIL

Filed May 15, 1930

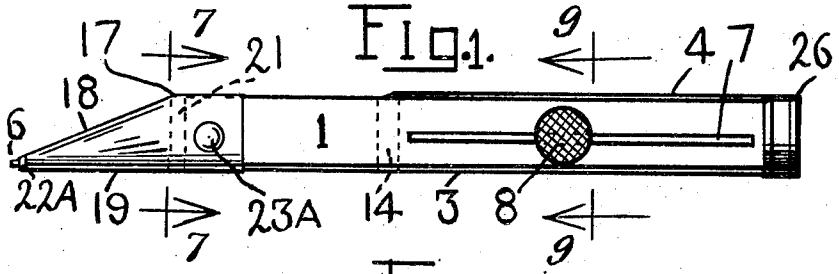

Fig. 1.

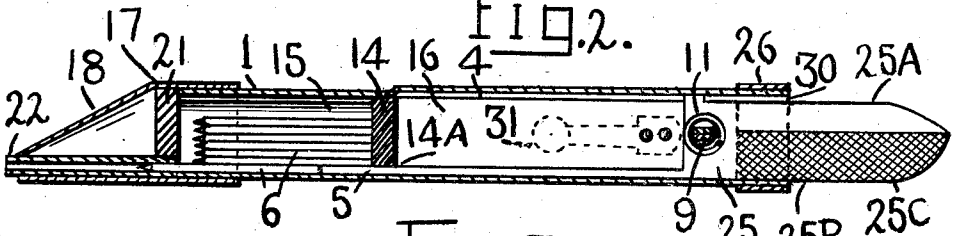

Fig. 2.

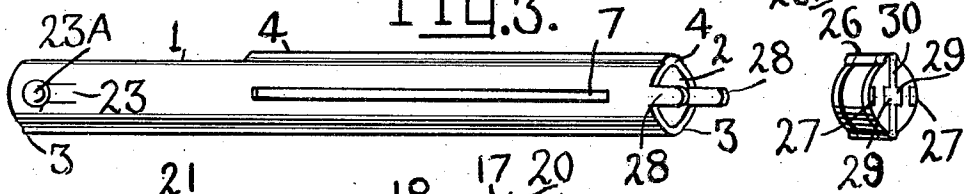

Fig. 3.

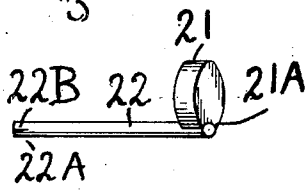

Fig. 5.

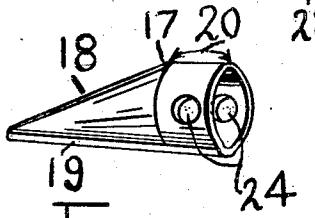

Fig. 4.

Fig. 8.

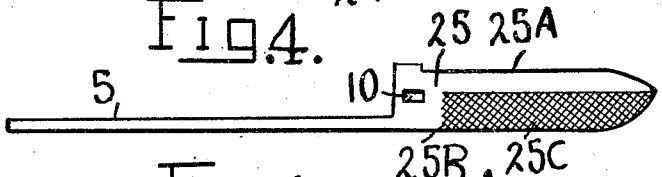

Fig. 6.

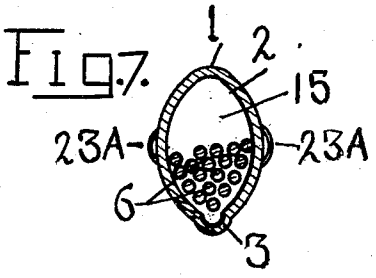

Fig. 7.

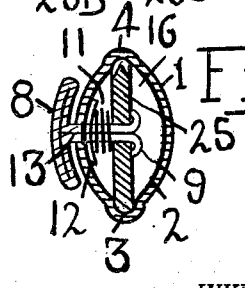

Fig. 9.

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Patented Mar. 15, 1932 1,849,997

UNITED STATES PATENT OFFICE

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SELF-FEED-MAGAZINE-PENCIL

Application filed May 15, 1930. Serial No. 452,768.

This invention relates more particularly to a class of writing devices in which a magazine is provided for containing a reserve of sticks of marking leads, adapted to be projected to writing position directly from the magazine by means of a push rod, or lead feeding plunger, without handling the leads. And the main object of the invention is to provide a pencil of the above character, which is composed of comparatively few and strong parts, adapted to contain a large reserve of marking leads, which are positively fed one by one from the magazine to writing position, by a simple operative lead feeding plunger, or push rod, the latter containing an associated cutting implement for opening envelopes, or for other use.

Another object of the invention is to provide a pencil of said character which is less bulky to carry, by forming the casing in an approximately elliptical tubular shape.

With the above and other objects in view, the invention will be hereinafter more fully explained with reference to the accompanying drawings forming a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings:

Fig. 1 is a longitudinal side elevation of one form of the self-feed-magazine-pencil embodying my invention.

Fig. 2 is a longitudinal section of the pencil shown in Fig. 1.

Fig. 3 is a perspective of the casing used with this pencil.

Fig. 4 is a perspective of the removable tip.

Fig. 5 is a perspective of the leads-retaining tubing used with the tip, removed.

Fig. 6 is a longitudinal detail view of the push-bar or leads feeding plunger used with this pencil, removed.

Fig. 7 is a cross-sectional view taken on lines 7—7 of Fig. 1.

Fig. 8 is a perspective of the retaining-cap used on the rear end portion of the casing, removed.

Fig. 9 is a cross-sectional view taken on lines 9—9 of Fig. 1.

The pencil has a casing (1) which in the preferred form comprises an approximately elliptical tubular wall (2) which may be so formed by a die operation from a single strip of material or metal, or from a cylindrical tubing. Formed interiorly of the casing longitudinally to its narrow wall portions are channels or grooves (3) and (4) inclusive, adapted to guide a push-rod or leads-feeding-plunger (5). Channel or groove (3) which extends from end to end of the casing, is also adapted to receive and guide a strip of marking graphite leads (6), see Figs. 2 and 7, inclusive. Extending along part of the wider tubular wall portion of the casing is a longitudinal slot (7) adapted to guide a slidably adjustable thumb-handle (8) preferably formed with a corrugated head shaped to conform to the casing and having one, or two inwardly extending fingers or prongs (9) inserted from slot (7) thru an opening (10) provided on the wider body portion of the rod or plunger and angularly bent oppositely thereof so as to be slidably movable in said opening, see Fig. 9. For retaining said plunger in slidably adjustable positions, I provide a spring (11) surrounding prongs (9) of the handle. Said spring abutting against the flat portion of the plunger, and to a friction washer (12) inserted on prongs (9). The washer may be of rubber or other suitable material. For releasing the washer from its frictional coaction against the interior wall portion of the casing by the action of said spring, I form the thumb-handle with shoulders (13) which extend downwardly from slot (7) and bear against washer (12), so that by pressing and pushing said handle along said slot, the push rod, or plunger will be moved along channels, or grooves (3) and (4). Rigidly inserted interiorly of the casing is a partition (14) dividing the casing into a forward magazine (15) and a rear compartment (16). Removably mounted on the forward end of the magazine is a tubular tip (17) formed with a cone shaped portion (18), a rectilinear portion (19), and an approximately elliptical tubular portion (20), the latter adapted to receive the forward end of the magazine. Rigidly inserted or fastened interiorly of the tip (20) is a second portion (21) adapted to

close the forward end of the magazine, and said portion has a notch (21A) adapted to receive soldered or otherwisely fastened thereto, a lead receiving and retaining tubing (22) having its inlet portion flush with the front wall of portion (21) and in depending line with the channel, or groove (3). Said tubing, has an end portion (22A) projecting outwardly from the tubular tip, as more particularly shown in Figs. 1, and 2. The tubing, is preferably split at (22B) as shown in Fig. 5, forming lead retaining means. In order to removably secure said tip on the forward end portion of the magazine, as shown in Fig. 1, I provide one or more tongues (23) which may be stamped integral with, or fastened on the casing, and the tongues are preferably formed each with a protuberance (23A) adapted to engage, or be engaged by locking openings (24) which are provided on the elliptical portion of the removable tip, as shown in Fig. 4, so that by pressing the protuberances simultaneously with pulling the tip, same may be removed from the casing for access to said magazine. Made integral with, or fastened on the push rod, or lead-feeding-plunger, may be a cutting implement or blade (25) preferably having a cutting edge (25A), a dull edge (25B), and extending along one or both flat side portions of the blade in proximity to its dull edge, may be formed with a toothed, or filing surface (25C) which may be employed for nail manicuring, or other purposes, as shown in Fig. 6. The push rod, or plunger guided in channels or grooves (3) and (4), enters the magazine thru a notch (14A) formed at the elliptical periphery of partition (14) and in register with channel or groove (3) engaging and forwardly pushing one of the leads contained in the magazine, which lead having by gravity entered groove (3) portion within the magazine as shown in Figs. 2, and 7, pushing the lead forwardly thru tubing (22) outwardly of its retaining end portion (22A) ready for use. At the rear end of the casing is a retaining cap (26) formed with fastening openings (27) adapted to receive fastening lugs (28) which are preferably made integral with the casing. Said lugs inserted thru said openings, are bent in recesses (29) provided on said cap thereby fastening the same. Said cutting implement, is projected from said rear compartment, thru an opening (30) of cap (26) by sliding handle (8) rearwardly. In order to conveniently secure the pencil clipped on the coat, or vest pocket of a person, I provide a pocket clip (31) preferably fastened on the flat, or wider wall portion of the casing as at Fig. 2, permitting the pencil to be carried perpendicularly flatwise in the pocket, resulting comparatively less bulky than the usual cylindrical pencil, at the same time retaining magazine reserve leads capacity of the latter. As clearly illustrated, the reduced push rod or plunger portion length is such, that its lead engaging end does not retreat beyond the approximate middle portion of notch (14A) when the cutting portion of the rod or plunger is completely projected rearwardly of the casing, as well as said cutting portion is to be completely within the casing, when a new lead fed by the rod or plunger portion, has reached writing position.

In projecting the cutting and filing element of the rod, or plunger for use, the pencil may be held in any desired position, but when retracting the same the pencil must be held in a position the reverse of that shown more particularly in Fig. 7, so that channel, or groove (3) is above any loose lead in the magazine preventing the lead feeding portion of the rod, or plunger from engaging and feeding a new lead thru the tip, when a new lead may then be undesired.

It is thought that the operation, and construction of this pencil is obvious from the above description, in which a comparatively simple self-feed-magazine-pencil has been outlined composed of few simple, and durable parts forming a convenient, compact combination of three devices in one, without sacrificing the magazine leads capacity, due to the fact that there are no parts occupying space interiorly of the magazine.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be misunderstood as limiting myself thereto as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope of the claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A mechanical pencil, comprising a tubular casing having longitudinally channeled or grooved interior wall adapted to guide a lead feeding rod or plunger and a marking lead, a tip on one end of the casing having an obliquely tapered portion and a straight portion, a longitudinal bore interiorly of the straight portion in line with said channel or groove adapted to receive a lead fed therefrom by said rod or plunger, and means manually operative from exteriorly of the casing for actuating the rod or plunger in feeding the lead.

2. A mechanical pencil, comprising a tubular casing having longitudinally channeled or grooved interior wall adapted to guide a lead feeding rod or plunger and a marking lead, an interior partition dividing the casing into a rear compartment and a forward magazine for receiving reserve marking leads, a cross-wise notch on the annular periphery of

the partition in register with the channel or groove admitting the rod or plunger in the magazine to engage and feed one of the leads entered in the channel or groove, a removable tubular tip at the forward end of the magazine, an interior partition in said tip closing the second end of the magazine, a cross-wise notch on the annular periphery of the second partition in line with the notch of the first mentioned partition, a lead receiving and retaining tubing in the removable tip in line with the channel or groove and extending from the notch of the second partition thru the tubular outlet of the tip adapted to receive one of the leads fed by the rod or plunger from the magazine, and means manually operative from exteriorly of the rear compartment for adjustably actuating said rod or plunger.

3. A mechanical pencil, comprising a tubular casing having an interior longitudinal channel or groove adapted to guide a lead feeding rod or plunger and a marking lead, an interior partition dividing the casing into a rear compartment and a forward magazine for receiving reserve marking leads, a cross-wise notch on the annular periphery of the partition in register with the channel or groove admitting said rod or plunger in the magazine to engage and feed one of the leads entered in the channel or groove, a removable tubular tip at the forward end of the magazine, an interior wall or partition in said tip closing the second end of the magazine, a cross-wise notch on the annular periphery of the second partition in line with the notch of the first named partition, a lead receiving and retaining tubing fastened from the notch of the second partition extending thru the outlet of the tubular tip and in line with said channel or groove for receiving and retaining one of the leads fed by said rod or plunger from the magazine, a longitudinal slot on the rear compartment wall of the casing adapted to receive a slidably adjustable thumb handle having operative connection with said rod or plunger.

4. A mechanical pencil, comprising an approximately elliptical tubular casing having longitudinally channeled or grooved interior adapted to guide a lead feeding rod or plunger and marking leads, an approximately elliptical partition dividing the casing into a rear compartment and a forward magazine for containing reserve marking leads, a cross-wise notch at the elliptical periphery of the partition in register with said channel or groove admitting the rod or plunger in the magazine engaging and feeding one of the leads entered in the channel or groove portion in said magazine, a removable tip at the forward end of the magazine having an approximately elliptical tubular portion with a wall closing the second end of the magazine, a lead admitting and retaining tubing fastened interiorly of the tip extending from its interior wall communicating and in line with the channel or groove portion of the magazine receiving and retaining one of the leads fed by the rod or plunger from the magazine, a longitudinal slot on the rear compartment wall of the casing adapted to receive a slidably adjustable thumb handle having operative connection with the rod or plunger, and means associated with said handle forming a frictional contact between said rod or plunger and interior wall of the casing to retain the rod or plunger and its cooperating handle to any position.

5. A mechanical pencil, comprising an approximately elliptical tubular casing having one of its narrow wall portions longitudinally channeled or grooved from end to end adapted to guide a lead feeding rod or plunger and marking leads, an approximately elliptical interior partition dividing the casing into a rear compartment and a forward magazine for containing reserve marking leads, a cross-wise notch at the elliptical periphery of said partition in register with said channel or groove admitting the rod or plunger in the magazine, a second longitudinal channel or groove on the second narrow wall portion of the casing extending from said partition along the rear compartment to the compartment end of the casing for additionally guiding the rod or plunger along the rear compartment, a removable tip having an approximately elliptical tubular portion mounted at the forward end of the magazine and having an approximately elliptical interior wall closing the second end of the magazine, a cross-wise notch on the elliptical periphery of said interior wall, a lead receiving and retaining tubing fastened interiorly of the tip extending from said notch thru the outlet of the tip in line with the channel or groove of the magazine adapted to receive one of the leads fed therefrom by said rod or plunger, a longitudinal slot on the wider wall portion of the casing extending rearwardly from its interior partition along the rear compartment for receiving a slidably adjustable thumb handle having operative connection with the rod or plunger, a spring surrounding said handle between the rod or plunger and interior of the casing forming frictional resistance with the longitudinal interior tubular wall portion of the casing causing the rod or plunger to retain its adjusted positions.

6. A mechanical pencil, comprising an approximately elliptical tubular casing with both ends open and having its narrow longitudinal wall portions interiorly grooved for guiding a lead feeding plunger and marking leads, an interior partition dividing the casing into a rear compartment and a forward magazine for containing reserve marking leads, a notch on said partition in register with one of the longitudinal grooves admit-

ting the plunger in the magazine, a removable tip on the forward end of the magazine having an approximately elliptical tubular portion adapted to receive the magazine end of the casing, a wall interiorly of the tip closing the second end of the magazine, resilient means provided on said magazine portion of the casing, the insertable portion of the tip having engageable means cooperating with said resilient means removably locking the tip, said tip having a lead admitting and retaining tubing fastened from its interior wall in line with the interior longitudinal groove of the magazine projecting thru the forward end of the tip for receiving a marking lead fed from the magazine by said plunger, a longitudinal slot on the wider wall portion of the casing extending from its partition along the rear compartment for receiving a slidably adjustable thumb handle with inwardly extending prongs, said plunger having a rearwardly extending flat body portion forming edgewisely slidable bearing in the grooved wall portion at the rear compartment, an opening at the flat body portion of the plunger receiving the prong ends of said handle for being angularly bent oppositely of said opening so that the handle has a partial sliding vertical movement thru said longitudinal slot and opening of the plunger, a spring surrounding or involuting the prongs of the handle forming a frictional resistance between the plunger and interior portion of the casing beneath along said longitudinal slot, said handle provided with means adapted to disengage said spring from its frictional contact with the interior portion of the casing, and a retaining cap fastened at the rear compartment end of the casing having a slot thru which the flat body portion of the plunger projects when the plunger is retracted from said magazine for engaging a new lead.

7. A device of the class described, comprising an approximately elliptical tubular casing having one of its narrow longitudinal portions with an obliquely tapered end forming an inclined tip with an outlet, and a longitudinal groove interiorly of the second narrow longitudinal portion of the casing in line and communicating with said outlet.

8. A device of the class described, comprising an approximately elliptical tubular casing having one of its narrow longitudinal portions with an obliquely tapered end forming an inclined tip with an outlet for the passage of marking leads, a longitudinal groove formed interiorly of the second narrow tubular portion of the casing in line with said outlet guiding a push rod and a marking lead.

9. In a device of the class described, a push rod element having an elongated flat body portion provided with engageable means cooperating with a push handle element, and cutting means provided on said flat body portion.

10. A push rod or plunger element having an elongated flat body portion provided with engageable means cooperating with a push handle element, a cutting edge with a point on said flat body portion, and a guiding shoulder projecting outwardly of the cutting edge in proximity of said engageable means.

11. In a device of the class described, a push rod or plunger element having an elongated flat body portion provided with engageable means cooperating with a push handle element, cutting and filing means formed on the flat body portion, and a guiding shoulder on the flat body portion projecting outwardly from said engageable means.

12. In a mechanical pencil, a tip formed approximately elliptical in cross section with an obliquely tapered end portion, and a rectilinear portion with a longitudinal bore for receiving and retaining a marking lead.

13. In a mechanical pencil, a removable tip having an approximately elliptical tubular portion adapted to be mounted on a similarly shaped end portion of a casing, a partition interiorly of the tip, a lead receiving and retaining tubing extending from a notch on said partition thru the forward end of the tip, and an inclined portion extending from the partition to the outlet of said tip.

14. In a mechanical pencil, a reserve marking leads magazine composed of a tubular casing formed with a longitudinal interior shallow groove adapted to receive and guide one of the leads, and means closing the ends of said magazine provided with an inlet and an outlet in register with said longitudinal shallow groove so that one by one the marking leads may be expelled therefrom.

15. In a mechanical pencil, an approximately elliptical tubular casing having its narrow wall portions longitudinally grooved adapted to guide a lead feeding plunger and marking leads, longitudinally slotted wider wall portion for receiving plunger actuating means, and means on one end of said casing fastening a retaining cap with an outlet opening.

16. In a mechanical pencil, an approximately elliptical tubular casing having its narrow interior wall portions longitudinally grooved adapted to guide a lead feeding plunger and marking leads, a longitudinally slotted wider wall portion for receiving and guiding plunger actuating means, fastening lugs projecting at the rear end of the casing, a retaining cap having openings adapted to receive said lugs, the cap having recesses adjacent said openings in which the lugs are inwardly bent, and an outlet slot on the cap thru which an elongated flat body portion of said plunger is projected from the interior of the casing.

17. In a mechanical pencil, an approxi-

mately elliptical tubular casing having its narrow interior wall portions longitudinally channeled adapted to guide a lead feeding plunger and marking leads, a longitudinal slot on a part of one of the wider sides of the casing for receiving and guiding plunger actuating means, a retaining cap on the rear end of the casing having an outlet opening thru which an elongated flat body portion of said plunger is projected from the casing, integral tongues with protuberances formed on the forward end of the casing adapted to secure a removable tubular tip having register openings engageable by said protuberances when the tip is mounted on said casing, and a pocket clip secured on the wider tubular portion of the casing oppositely to said longitudinal slot allowing the pencil to be flatwisely suspended.

18. In a mechanical pencil, a removable tip formed approximately elliptical in cross-section with an obliquely tapered end portion, a rectilinear portion with a longitudinal interior bore for receiving and retaining a marking lead, and means comprising bores thru the elliptical wall of the untapered end portion of the tip adapted to be engaged by means comprising resilient protuberances contained by a casing on which the tip is removably mounted.

19. In a device of the class described, a thumb handle element formed with a head, two prongs extending downwardly from said head adapted for being operatively connected to a push rod or plunger, and means comprising shoulders formed on the prongs in proximity of the head adapted to act upon a coil spring encircling said prongs between its shoulders and said rod or plunger.

20. In combination with a mechanical pencil having a tubular casing with leads guiding means, a longitudinally slotted portion, and a lead feeding plunger, a thumb handle having a knurled or corrugated head shaped in conformity to the shape of said tubular casing, two prongs extending downwardly from said head slidably inserted in said longitudinal slot and operatively connected with said plunger, a coil spring surrounding said prongs between the plunger and interior portion of the casing beneath said longitudinal slot, and a friction washer inserted on said prongs above said spring increasing frictional resistance against shifting of the plunger in positions along the longitudinal slot of the casing.

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