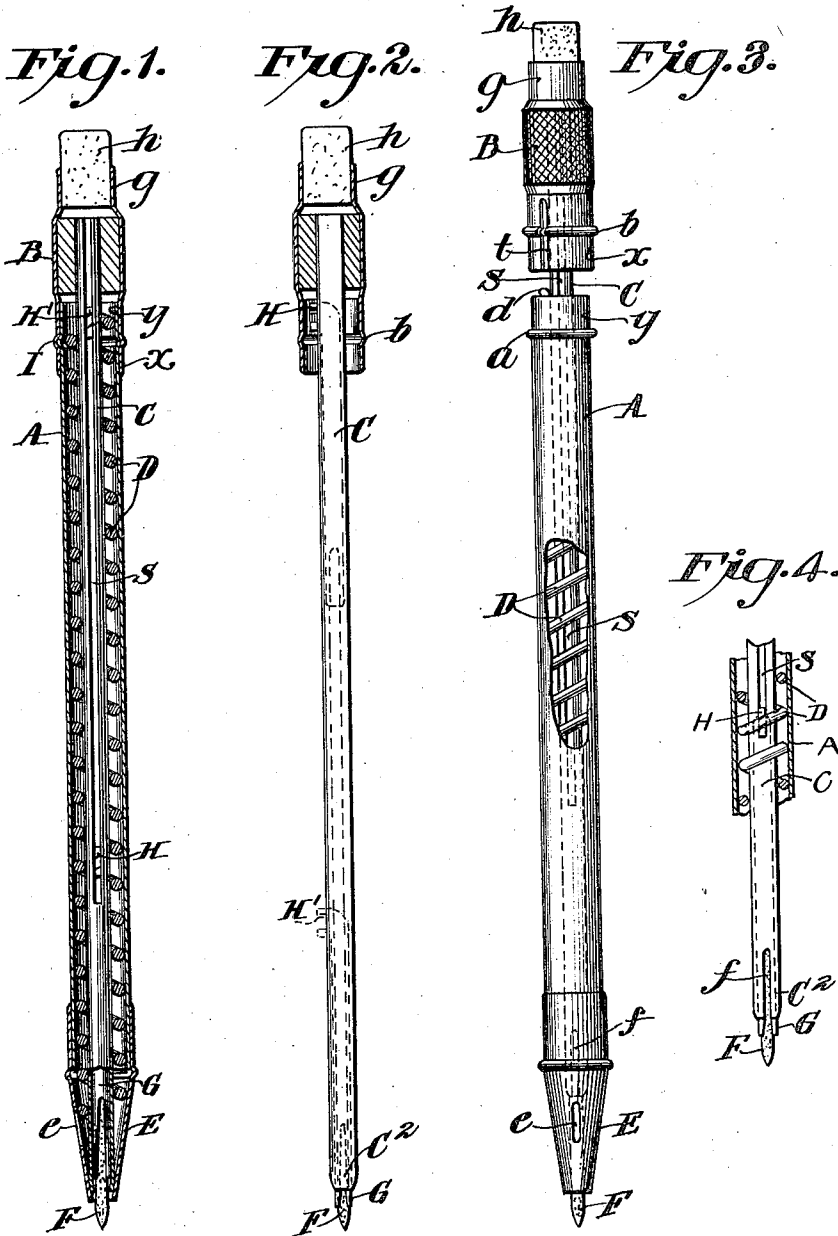


H. H. TROXEL.
PROPELLER PENCIL.

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1,310,260.

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Witnesses:
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UNITED STATES PATENT OFFICE.

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PROPELLER-PENCIL.

1,310,260.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARVEY H. TROXEL, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, have invented a new and useful Propeller-Pencil, of which the following is a specification.

My invention relates to improvements in propeller pencils; its principal objects are, first, to provide improved means for automatically propelling and repelling the lead or marker; second, to provide means for readily affixing and removing the lead or marker from the holder; and third, to provide improved means for rigidly securing the point of the lead or marker in position.

It consists primarily, of a pencil body comprising a helix and suitable covering therefor to form the exterior of said body; a tubular member rotatable within said helix and extended beyond the same at both ends; means for removably securing said tubular member within said helix; means for propelling a snugly fitting lead or marker into and through the apex or point of said pencil body, and means for inserting and for removing said marker from said pencil body at pleasure, as hereinafter set forth and as stated in the appended claims.

My invention is illustrated by the accompanying drawings, in which similar letters of reference indicate like parts.

Referring thereto, Figure 1 is a longitudinal section of a pencil embodying my invention; Fig. 2 is a view of the tubular member and connections detached from the pencil body; Fig. 3 is a plan view of my pencil showing the helix through a cut away portion, and the tubular member partly withdrawn; Fig. 4, a fragmentary view of the pencil body and of the lower portion and apex of the tubular member and the marker holder, and illustrating in particular the engagement of the marker holder with the threaded portion or helix of the pencil body in moving the marker holder and marker through the circumferential movements of the tubular member and finger piece.

In the drawings A is the pencil body; B, the finger piece to which the tubular member C is rigidly connected; said finger piece is provided with an expansible sleeve *x* and also with a band *g* to receive and hold an eraser *h* in the usual well known way.

The pencil body terminates upwardly

with a neck *y*, and may be of any preferred design or material suited thereto; it is preferably made by wrapping said material tightly around the helix D from end to end thereof, and is surmounted with a conical cap E, as shown in Fig. 3. Said helix D extends from a point within said conical cap E to a point slightly beyond said neck *y*, as shown at *d*, Fig. 3, and is adapted to receive said tubular member C endwise within the same. The latter is loosely suspended and removably secured within said helix by means of said sleeve *x* and said neck *y*, the former being made of resilient material and having a slot *t* therein to permit of sufficient expansion to enable the rib *b* to grip over the rib *a* of the collar *y*. Said finger piece B is thus rotatably secured to the pencil body, and said tubular member C suspended to rotate freely within said helix, as shown in Fig. 1. Moreover, said tubular member is made to terminate beyond said helix in said conical cap E so as to rotate upon its inner surface near its apex, thereby securing the same against any lateral movement by pressure in writing. Said tubular member has a longitudinal slot S terminating, at its upper end, within said sleeve *x*, and at its lower end, a short distance from the lower end of said tubular member; and the latter also has a slot *f* at its lower end, as shown in Fig. 4. The particular objects of said slots and said termini will be hereafter explained.

A carrier G, adapted to engage the inner end of a lead-stick or marker F, is fitted to slide up and down within said tubular member by means of a projecting stud H when the latter is in operative engagement with said helix through said slot S, by the rotation of said helix about said tubular member, in the usual and well known way.

Said helix terminates at or near the top of the collar *y*, and is open at its top, and its upper terminus *d* projects upwardly, as shown in Fig. 3. Said projection facilitates the manual separation of the lead carrier G and tubular member C bodily from the helix D and pencil body A, as follows: The slot S extending upwardly within the expansible sleeve *x*, as aforesaid, when the latter is in normal position over the collar *y*, as shown in Fig. 1, the upper terminus of the slot is beyond the open end of the helix, and beyond the terminus of said projection.

Means are thereby afforded for propelling

the stud H upwardly on said projection *d* far enough to automatically force apart the resilient connection of said sleeve and collar by the rotation of said tubular member in one direction, and at the same time, the stud H, having reached the upper terminus of said projection, is disengaged therefrom, and thereupon said tubular member, and lead carrier within it, being thus freed from connection with the pencil body, may be withdrawn therefrom at pleasure.

The removal of said tubular member and carrier therein from said helix, as aforesaid, affords direct access to said carrier through the slot *f* for extracting the lead-stub F (Fig. 4) therefrom, and also provides better means than heretofore for replenishing the carrier with a new lead-stick by the direct insertion of the same therein while said tubular member is withdrawn from the helix.

The lower terminus of the slot S limits the downward movement of the carrier, and also prevents it from falling out of the tubular member during its removal from the helix.

It follows that when said carrier is replenished with a new lead-stick, as aforesaid, within said tubular member, the separated parts of the pencil may be reassembled for writing by replacing said tubular member within said helix. This is accomplished by its rotation in the opposite direction; and when the stud H, in the downward movement of said tubular member, reaches the projecting terminus *d* of the helix, said stud will be automatically engaged thereby, and will thence follow the coil of said helix downwardly until the sleeve *x* is forced into operative engagement with the collar *y*, and thereafter, the continued rotation of said tubular member in the same direction, and, the engagement of said stud with said helix, will forcibly propel the point of said lead-stick in said carrier through the orifice in the apex of said conical cap, while the lower end of the tubular member rests rotatably upon the inner surface thereof, as aforesaid, and thereby rigidly holds said lead-stick point, snugly fitting said orifice, in position for writing.

I am aware it is not new to construct a propeller pencil having a slotted tubular member rotatable within a helix, and a lead-stick carrier operable within the former in engagement with the helix, and such I do not broadly claim.

I am also aware that a "clamping nozzle," so called, and other forcibly clamping means have been heretofore used to snugly hold the tip of the lead stick after its loose insertion upwardly into the pencil body, and such I also disclaim.

My improvement lies in substituting for

such clamping devices the novel means set forth for gaining access to the lead carrier by its bodily removal from the pencil body, and for the easy insertion of a new lead stick which snugly fits the apex orifice, by its introduction into and downwardly through the helix and apex orifice, instead of upwardly, as heretofore, and thereby accomplishes the novel results hereafter stated.

Having thus fully described my invention, what I claim as new is—

1. A pencil comprising a tubular body, an annular rib spaced from one end of the body forming a neck portion, a conical cap at the opposite end of the body, a helix within said body open at one end and terminating at said end outwardly of said neck portion, a finger piece having an expansion sleeve removably journaled upon said neck and rib, a tubular member secured at one end to said finger piece and having its other end extending within and in contact with the said cap, and a marker holder arranged within said tubular member in operative engagement with the said helix.

2. A pencil comprising a tubular body having a neck at one end and an intermediate projecting rib, a hollow cap at the opposite end of said body having a side slot therein, a helix within said body open at one end and terminating at said end outwardly of said neck, a finger piece having an expansion sleeve provided with an annular pressed out rib removably journaled upon the said neck with the said ribs arranged in journaled relations, a tubular member secured at one end to said finger piece and with its other end within said cap, a marker holder shiftably arranged within said tubular member in operative engagement with said helix, said tubular member having a slot at its free end adapted for registry with said cap slot, and a marker within said holder within the lower ends of said tubular member and cap inwardly of said slots when operatively positioned.

3. A pencil comprising a tubular body terminating at one end in a neck portion having an annular rib and at the other end in a conical cap, a helix within said body extending between said conical cap and neck portion, a finger piece having an expansible sleeve removably journaled upon said neck portion and rib, a tubular member carried by and operable with said finger piece and extending within said helix, and a marker holder longitudinally movable in said tubular member in operative engagement with said helix and circumferentially movable with respect to the latter through the like movements of said tubular member and finger piece.

4. A pencil comprising a tubular body having a neck at one end and a hollow cap at the other, a helix within said tubular body

extending between said cap and neck portions, a finger piece having an expansible sleeve removably journaled upon said neck portion and provided with a slotted tubular member extending through said helix, and a marker holder longitudinally movable within said tubular member and having a projection extending through the slotted portion of the latter in operative engagement with said helix and circumferentially movable through the like movements of said tubular member and finger piece whereby said marker holder is moved longitudinally.

5. A pencil comprising a tubular body provided with a helix extending through its bore, a finger piece removably and rotatably mounted on said tubular body and provided with a slotted tubular member extending through and insertible in and removable from said helix by said finger piece, and a marker holder horizontally slidable on said tubular member and having a projection extending from said slotted portion in operative threaded engagement with said helix whereby upon the rotary movement of said finger piece and tubular member said marker holder will be moved spirally along said helix and longitudinally within said tubular member.

6. A pencil, comprising a tubular body terminating at one end in a neck portion and at the other in a conical cap, a helix within said body extending between said cap and neck portion, a finger piece removably journaled upon said neck portion, a tubular member carried by and insertible and removable with said finger piece and provided with a slot extending within said helix, one end of said tubular member being supported within said conical cap and a marker holder longitudinally movable in said slot of said tubular

member in operative engagement with said helix and circumferentially movable with respect to the latter through the like circumferential movements of said finger piece.

7. A pencil, comprising a tubular body provided with a helix within its bore, a finger piece rotatably mounted on said tubular body and provided with a tubular member extending within said helix and insertible in and removable from the latter by said finger piece, and a marker holder slidably arranged longitudinally within said tubular member and having a projection in operative engagement with said helix whereby upon the rotary movement of said finger piece and tubular member said marker holder will be moved circumferentially and spirally along said helix and longitudinally along said tubular member and within said tubular member.

8. A pencil, comprising a tubular body provided with an internal helix, a finger piece removably and rotatably mounted at the end of said tubular body and provided with a stem portion removably mounted in said helix and tubular body through said finger piece, and a marker holder carried by and longitudinally movable on said stem portion and having a laterally extending projection in circumferential slidable engagement with said helix whereby upon the rotary movement of said finger piece and stem portion said marker holder will be moved spirally of said helix and longitudinally of said stem portion.

In witness whereof, I hereunto set my hand this 11th day of May A. D. 1914.

HARVEY H. TROXEL.

In presence of two witnesses:

HIRAM SWARTZ,
JOHN C. McCLARAN.