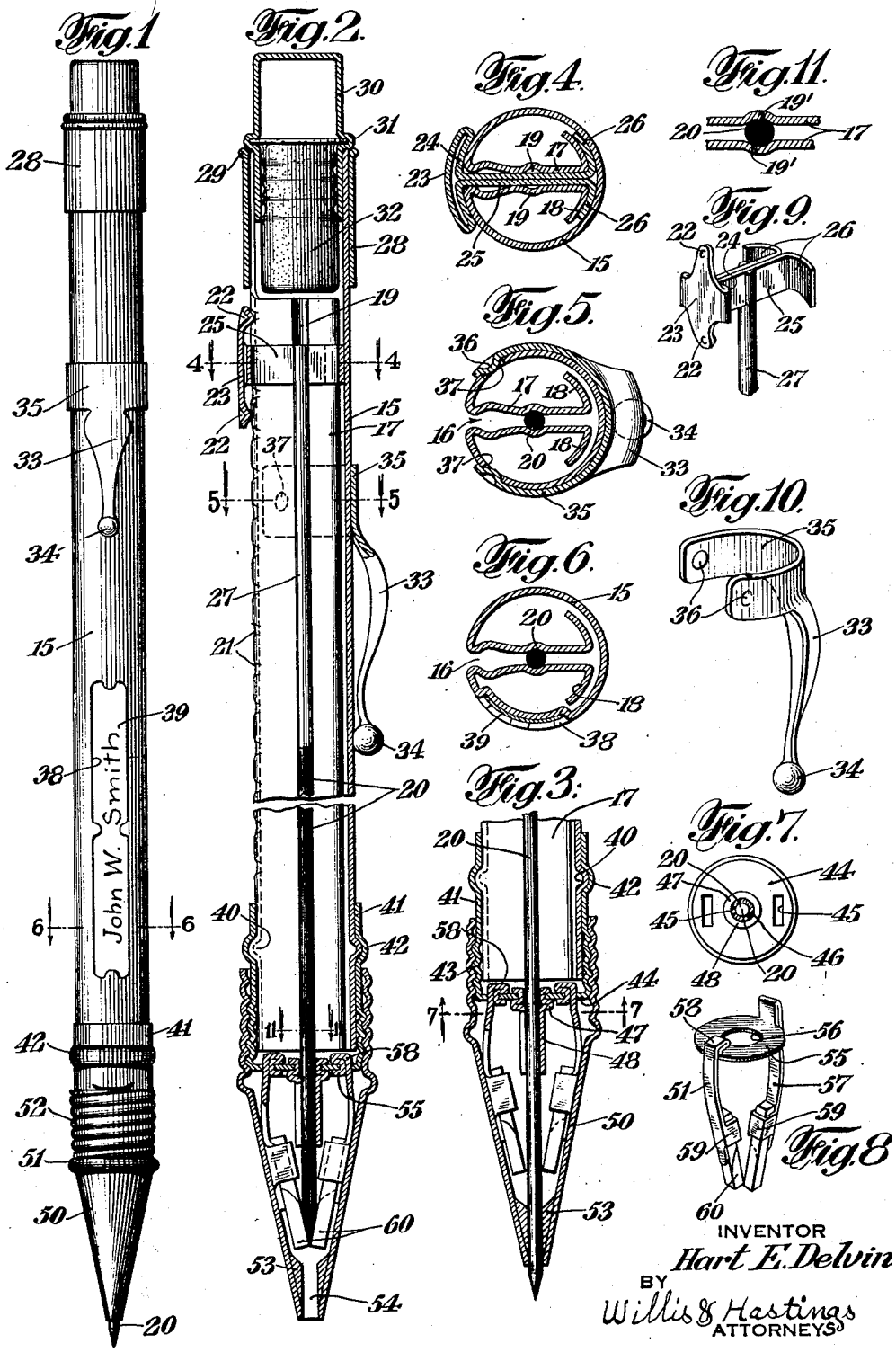
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PENCIL

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PENCIL

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This invention relates to pencils having leaden cores for drawing, marking and writing purposes.

Although one of the most common and indispensable implements, little or no improvement has been made in the every day, inexpensive type of lead pencil, composed of round cores of lead, or compressed colored pigments, enclosed in grooves between two substantially semi-cylindrical strips of wood cemented to form a unit, cedar being selected because of its fine, close, straight grain, non-warping qualities and pleasant odor.

Such pencils require frequent sharpening in order to present a suitably sharp point, thus constantly being reduced in length, thereby changing the "feel" in the user's hand, and when too short for convenient use are thrown away, the discarded portion averaging more than one fourth of the original length.

The scarcity of selectable cedar, and the constantly increasing demand for a cheap but dependable pencil has suggested certain improvements embodied in the present invention, which has, as one object, to provide a pencil of fixed unvariable length, in which the marking element is adjustable lengthwise relative to the barrel by predetermined amounts, and held firmly in its adjusted positions until substantially its full length has been used, thereafter refilled in a ready manner.

A further feature is in the provision of means within the casing whereby the marking element may be easily and quickly sheared to a true point without removal.

Another aim is to combine with the casing a reversible eraser, normally concealed and protected, and instantly available for use.

Further features reside in the provision of a name plate, an effective clip and more essential, a strong light casing enclosing the operative parts, all of which can be manufactured at an expense that compares favorably with the cost of an ordinary lead pencil.

These several important features are accomplished by the novel and practical design, construction and combination of simple parts hereinafter described and shown in the accompanying drawings, constituting an essential component of this disclosure, and in which:—

Figure 1 is a side elevational view of an embodiment of the invention as assembled ready for use.

Figure 2 is a longitudinal sectional view of the same, taken in a plane at a right angle to Figure 1 and drawn to an enlarged scale, the lead being retracted into position for sharpening.

Figure 3 is a similar but fragmentary view of the same, showing the lead extended for use.

Figure 4 is a further enlarged transverse sectional view taken on line 4—4 of Figure 2.

Figure 5 is a similar view taken on line 5—5 of Figure 1.

Figure 6 is another like view taken on line 6—6 of Figure 1.

Figure 7 is an end view of the casing with the tip cap and sharpener removed, looking essentially on line 7—7 of Figure 3.

Figure 8 is a perspective view of the lead sharpening device in detail.

Figure 9 is a similar view of the lead projecting device.

Figure 10 is a like view of the pencil clip.

Figure 11 is a partial transverse sectional view taken on line 11—11 of Figure 2.

Referring in greater detail to the drawings, the casing or barrel of the pencil, designated generally by the numeral 15 is essentially a hollow cylinder formed, like all the other parts, of sheet metal by die stamping to produce a narrow opening 16 throughout its length.

Extending inwardly from the well rounded edges of the opening are opposed parallel walls 17 terminating in re-entrantly curved flanges 18 clearing the interior of the casing, these walls presenting concave faces, axially of the casing, adapted to guide a lead 20 entered therebetween and exert a moderate pressure upon it, the inner walls being omitted at the upper end of the pencil as seen in Figure 2.

In order to prevent the lead from rotating the walls 17 at the recesses 19 may be sheared lengthwise and sprung slightly inwardly to

present opposed ratchet teeth 19′ to grip the lead effectively.

Formed in the edges of the slot 16 are a series of equally spaced notches 21, throughout the main central portion of the casing, to engage detents 22 struck inwardly from the ends of a spring slider 23 having infolded rear portions 24 bent to conform to the exterior of the casing and from which extend a pair of arms 25 reaching through the slot 16, past the walls 17 and terminating in outturned flanged guides 26 adapted to freely slide between the flanges 18 and wall of the casing 15 as best seen in Figure 4.

It is to be noted that the detents 22 are spaced differently from the spacing of the notches 21 to permit adjusting the slider at increments of half the length of the spacing, as will be seen in Figure 2, in which the upper detent is engaged and the lower detent midway between adjacent notches.

Carried by the slider arms 25 is a fixed rod 27 of the same diameter as the lead 20 and slidable in the guide recesses 19 to advance the lead in a manner readily understood.

At the upper end of the casing is a ferrule 28 having a beaded outer edge 29 with which is engageable a bead 31 formed midway the length of a reversible cap 30 fitting neatly within the casing end above the walls 17, one end of the cap being provided with an eraser 32 normally concealed within the casing which acts to prevent it from being soiled.

A clip 33 of the spring bar type, is shown in detail in Figure 10, as provided with a globular terminal 34 and a spring band 35 having inreaching detents 36 adapted to engage in perforations 37 in the casing wall whereby the pencil may be safely carried in a pocket.

Further down in the casing is an inset panel 38 to receive a plate 39 bearing the maker's or owner's name.

Near the lower end of the casing is an annular bead 40 by which is rotatably engaged a correspondingly beaded sleeve 41 knurled as at 42 and provided with a coarse rolled screw thread 43 at its outer end which is closed by an integral cap plate 44.

This plate is pierced to produce two parallel slots 45 and a central opening 46 in which is spun or upset the base 47 of a split sleeve 48 in which the leads 20 closely fit, this sleeve extending outwardly towards the point of the pencil; see Figures 2 and 3.

Engaged by the threads 43 of the cap sleeve is a conical tip 50 having an annular knurled bead 51 and a threaded portion 52 therebeyond.

The main portion of the tip is hollow but at its lower end is a solid guide 53 having an axial aperture 54 through which the lead 20 may snugly pass, thus providing a bearing at its end to hold the lead firmly when in use.

The lead sharpening device, shown in detail in Figure 8, consists of a plate washer 55 having an opening 56 through which the base of the split sleeve 48 freely extends, the washer being held rigidly to the cap plate 45 by folding the arms 57, passing them through the slots 45 and upsetting them thereover, as at 58.

The extending portion of the arms 57 are bent convergently and formed on their inner surfaces are sockets 59 adapted to receive and firmly retain a pair of opposed cutters 60.

In operation, to refill the pencil, a lead 20 is entered through the tip aperture 54, the sharpening cutters being previously retracted, then passed through the spring sleeve 48 upwardly between the grooves 19 of the interior plate arms 17, until the lead makes contact with the lower end of the rod 27, at that time raised to its limit by the slider 23.

Obviously the lead will be fed downwardly into operative position by adjusting the slider to engage its detents in the notches 21 selectively.

In sharpening the lead the tip cup 50 is raised by rotating the threads on the sleeve 41, forcing the spring arms 57 inwardly until contact is made between the cutters 60 and lead 20, thereafter rotating the beaded sleeve, causing the cutters to rotate around the end of the lead until a desirable point has been formed.

Due to the backing of the arms 51 by contact with the conical interior of the tip 50, this effect is easily and quickly accomplished, the clippings dropping out through the tip aperture 54.

When a suitable point has been made the tip cap 50 is given a few turns on its threads, releasing the cutters, which spring outwardly away from the lead, which is then adjusted by the slider 23.

Although the foregoing is descriptive of the preferred embodiment of the invention it will be obvious that minor departures may be made without departing from the spirit of the device as claimed.

Having thus described the invention, together with the manner of its construction and use, what is claimed as new and desired to secure by Letters Patent, is:—

1. In combination, a tubular casing having spaced inreaching plate elements grooved to guide a lead, a conical tip on said casing to guide a lead when extended, means to advance a lead through the casing and tip, a sleeve rotatable on the end of said casing between said casing and said tip, a pair of spring arms carried by said sleeve, cutters fixed in sockets on said arms, means for rotating said cutters relative to a lead, and means to close said cutters into operative cutting relation with the lead.

2. In combination, a tubular casing having spaced inreaching plate elements grooved to

guide a lead, a conical tip on said casing to guide a lead when extended, means to advance a lead through the casing and tip, a sleeve rotatable on the end of said casing between said casing and said tip, means to prevent longitudinal movement of said sleeve, threads on said sleeve engaged in said tip, spring arms fixed on said sleeve extending into contact with the interior of said tip, sockets on said arms, cutters fixed in said sockets to extend convergently into the tip and contact a lead held therein, means for pressing said cutters against a lead, and means for rotating said cutters whereby to produce a point on the lead.

In testimony whereof I affix my signature.

HART E. DELVIN.