

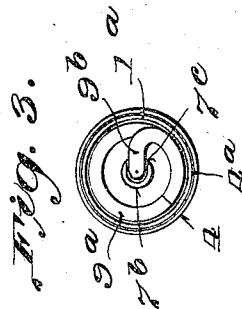
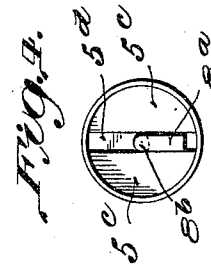
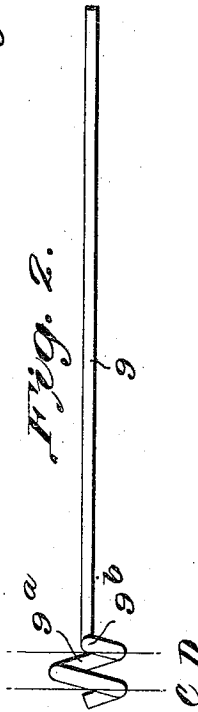
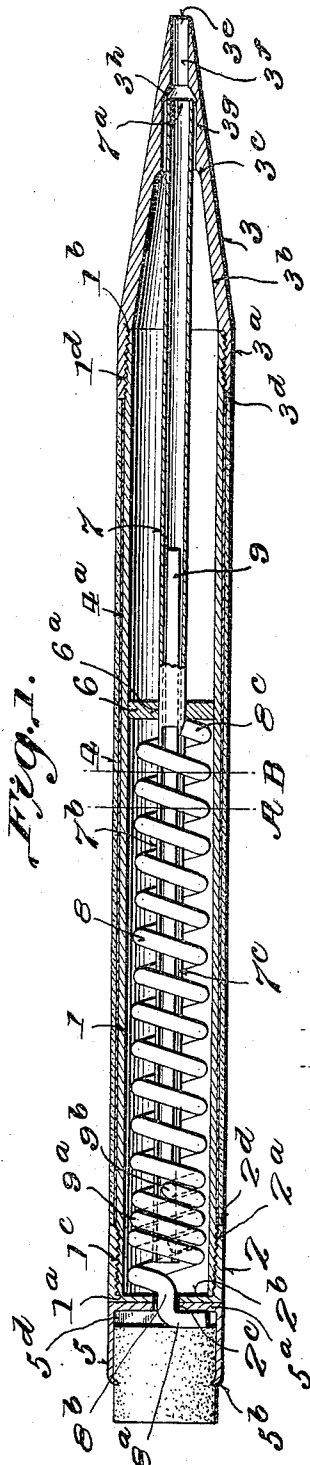
Sept. 9, 1924.

F. W. D'OLIER

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PENCIL

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UNITED STATES PATENT OFFICE.

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PENCIL.

Application filed September 12, 1922. Serial No. 587,708.

To all whom it may concern:

Be it known that I, FRANCIS W. D'OLIER, citizen of the United States, residing at Moorestown, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

This invention relates to pencils and writing equipment and pertains particularly to a transparent outer casing or sleeve mounted on the barrel of pencils and pens.

One of the objects of the invention is to provide a pen or pencil having either a decorated barrel portion which is protected by an outer transparent sleeve or which has an intermediate decorated sheet of thin material inserted between the barrel and the outer transparent sleeve. The decoration on the barrel or sheet might be either a name and address or some advertising data.

One feature of the invention relates to the combination with magazine pencils having one or both ends removable, thus facilitating the mounting of the transparent sleeve on the barrel and the positioning of the sleeve by a removable end. This application was divided from application Serial Number 510,492, filed October 26, 1921, since issued as Patent 1,436,581, November 21, 1922, which was directed to a pencil of a type particularly adapted for use with the sleeve of the present invention.

The particular configuration and relative position of the parts is set forth in conjunction with a mechanical pencil of a desirable type in the following specification and claims, and illustrated in the accompanying drawing in which:

Fig. 1 is an enlarged view of a section taken centrally and longitudinally through the transparent sleeve and intermediate sheet between the sleeve and the barrel of the pencil;

Fig. 2 is a side view of the unitary combined actuated screw and plunger, as removed from the pencil;

Fig. 3 represents an end view of the barrel of the pencil, showing the outer sleeve, the intermediate sheet, the barrel and actuated screw and plunger in position within the barrel and the plunger within the central tube; and

Fig. 4 represents an end view of the actuating end piece, with the eraser removed, and illustrating the position in

which the extreme rear end of the actuating spring screw member is secured to the actuating end piece.

Referring in detail to the drawing, 1 indicates the barrel of a pencil of the type described, enlarged considerably in order to more clearly show the relative positions of the parts. 1^a indicates the rear end of the barrel and 1^b indicates the front end of the barrel, and these ends are provided with the respective threaded outer portions 1^c and 1^d. Screw threaded to the end 1^a is a rear end cap 2 having screw threads 2^a on the inner surface thereof engaging the threads 1^c of the barrel. The rear face of the cap 2 is indicated at 2^b, and centrally through this rear face is an opening 2^c, the purpose of which will be described. The opposite end of the cap 2 provides a first annular shoulder or flange surface 2^d having a thickness the same as the wall of the cap for cooperation with the sleeve, as will be described. The front end is provided with a screw threaded fastening cap 3 which has a rear portion 3^a with threads adapted to engage the threads 1^d of the barrel. Tapering forwardly from the portion 3^a, the inner walls of the tip are indicated at 3^b and this tapered portion extends into a more sharply inclined part indicated at 3^c. The rear end of the cap is also provided with the square cut shoulder or annular flange surface indicated at 3^d corresponding to the shoulder 2^d of the rear end cap and which cooperates with the sleeve, as will be described. The extreme tip of the pencil is indicated at 3^e and a restricted bore for providing a tight sliding fit for the lead is indicated at 3^f. Between the points 3^c and the bore 3^f, there is provided a cylindrical portion having the walls 3^g which provides a loose sliding fit for the central guide tube as will be described. Between the walls 3^g and immediately adjacent the entrance to the bore 3^f is the annular inclined surface 3^h against which the central tube is adapted to rest in order to position the tube centrally and bring the bore of the tube into alignment with the bore 3^f.

The transparent sleeve 4 of the present invention, of celluloid or other suitable material is loosely fitted over the length of the barrel 1 and held in position by the flange surfaces 2^d and 3^d. Preferably the sleeve 4 is cylindrical and has walls of the same thickness as the width of the flanges, so that

the assembled pencil may provide a smooth exterior. Between the barrel 1 and the sleeve 4 there is inserted a sheet 4^a of paper bearing suitable advertising or decorative material for display through the cylinder 4, or the sheet 4^a may be discarded and designs for artistic effect or advertising material may be carved on the outer surface of the barrel 1 and thus made visible through the cylinder 4 although protected from actual wear by the outer transparent covering. The material of the threaded ends 1^c and 1^d, in this case the barrel 1, serves as means for holding the end means with their flanges 2^d and 3^d in position adjacent the ends of the transparent sleeve.

The operating mechanism of the pencil on which the sleeve of the present invention is mounted will now be described. At the extreme end of the pencil is the actuating end piece 5 which is formed, in the pencil illustrated, as a cylindrical cap having an end partition 5^a positioned against the rear face 2^b of the cap 2. The outer end of the cylinder 5 is turned inward or otherwise suitably provided with some gripping surface as indicated at 5^b to engage and hold an eraser. The partition 5^a is provided with a central opening to be in alignment with and correspond to the opening 2^c in the cap 2 for the reception of the rear end of the actuating screw and the securing of an end between the plates 5^c and in the space 5^d, as will be described.

A central partition 6 is securely fixed within the barrel by brazing, soldering or suitable means, and divides the inner bore of the barrel into a front and rear chamber, the front chamber being a magazine for extra leads, and the rear chamber containing the actuating screws. The partition 6 has an axial opening 6^a for the reception of the guide tube as will be described.

The guide tube 7 is also rigidly mounted within the opening 6^a of the partition 6 by brazing or soldering, and is thus fixed with respect to the barrel. The tube 7 has the extreme front end 7^a projecting beyond the end of the barrel and adapted to engage the inclined wall 3^b of the tip. The rear portion of the tube on the opposite side of the partition 6 is indicated at 7^b and is provided with a slot through the wall thereof at 7^c, this slot extending from the rear end of the guide tube substantially all of the way to the partition.

The actuating helically coiled spring screw member 8 substantially fills the diameter of the bore of the barrel and extends the full length of the rear chamber. It will be noted that the member 8 is free to revolve within the circular walls of the barrel; that the lateral portions of the spring 8 are loosely positioned within the barrel, and that the coils or turns of the member 8 are

positioned apart a distance substantially as great as the cross section of the material of the spring. The extreme rear end 8^a of the member 8 extends through the opening 2^c and is bent at right-angles to the longitudinal axis of the spring 8 and fixed within the actuating end piece 5 by being soldered, brazed, or otherwise secured between the plates 5^c, which latter provide the space 5^d having a width substantially the same as the width of the end 8^a. In Fig. 1 the end 8^a is illustrated as being continued through the opening 2^c by an extension portion 8^b, which latter is necessarily positioned axially. The opposite end of the member 8 or the front end thereof is indicated at 8^c, which end normally should be located relatively close to the partition 6 so that the partition would prevent the actuated screw from becoming unfastened from the coils of the screw 8.

The combined actuated screw and plunger 9 is illustrated in its removed position in Fig. 2 and in its assembled position with the other parts in Fig. 1. This structure is peculiar in that the plunger rod is continuous and formed in one piece with the actuated screw portion 9^a. The member is inserted in the rear end of the barrel, when the cap 2 and actuating piece 5 with the actuating screw are removed, by fitting the rod 9 into the slotted guide tube 7^b. A right-angle shoulder 9^b extends from the straight rod 9 to the helical turn of the actuated screw part 9^a, this portion 9^b being illustrated in Fig. 3. The right-angle shoulder 9^b extends through the open slot 7^c and is prevented from turning by the walls of this slotted opening. Comparing the respective size and pitch of the turns of the helical screw portions 8 and 9^a as shown in Figs. 1 and 2, it will be noted that these dimensions are substantially the same as may be compared by observing the distance A—B in Fig. 1 with the distance C—D in Fig. 2. Referring to Fig. 1 it will be noted that the turn of the member 9^a substantially fills the space between the adjacent turns of the member 8.

The structure is assembled by first inserting a combined plunger 9 and actuated screw 9^a within the slotted tube so that the shoulder 9^b extends through the slot. The rear cap 2 is then screwed into place by bringing the end 8^c of the actuating screw into screw threaded engagement with the coils 9^a and completing this turning movement until the end 8^c is moved to its extreme position near the partition 6. The rear cap 2 is screwed into position on the threads 1^c and soldered or brazed to prevent turning. The screw threaded portion may be so formed that the binding of the threads serves to hold the cap 2 from turning with respect to the barrel. The actuating end piece 5 may then be turned with respect to

the cap 2 in order to adjust the position of the plunger 9 within the guide tube 7. Leads are normally inserted by removing the front end cover 3 and slipping each additional lead as used into the front end of the tube 7, and then replacing the cap 3. Adjustment of the member 5 draws the plunger forward or backward, and the lead is forced from the guide tube 7 through the bore 3' into position for use at the tip of the pencil 3^e.

The arrangement of the working parts provides a resilient springlike yielding movement to the lead which is most desirable in making for easy writing. The simplicity of the parts has provided an inexpensive construction and one which is not subject to breakage or repeated adjustments and the materials may be made from substantially any readily worked metal.

The present invention requires that the transparent sleeve be held on the pencil barrel and preferably this is effected by the use of members having flanges to hold the ends, at least one of which members is removable. The invention may be used with any transparent material and a substitution of any form of transparent material will not depart from the scope thereof.

I claim:—

1. In a pencil, a barrel having a front end and a rear end, a detachable cap secured over said rear end and having the front end wall of said cap providing a first annular flange, the height of which flange being its thickness, a front end piece detachably secured over the front end of said barrel and having the rear end wall of said

front end piece providing a second annular flange, the height of which is the thickness thereof, and a removable transparent sleeve fitted endwise over said barrel and positioned between the adjacent end walls of said front end piece and said rear end cap and having a thickness of wall substantially the same as the projecting height of said adjacent end walls.

2. In a writing implement, a central transparent sleeve, separate end members abutting the opposite ends of said sleeve, and barrel means separable from each of said end members holding said end members in position at the ends of said sleeve.

3. In a writing implement, a central transparent sleeve, separate end members abutting the opposite ends of said sleeve, barrel means separable from each of said end members holding said end members in position at the end of said sleeve, and a member within said sleeve bearing display matter and positioned with the display matter next adjacent said transparent sleeve.

4. In a pencil, a barrel, a transparent sleeve positioned over said barrel, and stop members at the ends of said sleeve detachably secured to said barrel and holding the sleeve in position thereon.

5. In a pencil, a barrel, a transparent sleeve positioned over said barrel, and stop members at the ends of said sleeve detachably secured to said barrel and holding the sleeve in position thereon, and having a thickness of wall substantially the same as the thickness of the wall of the sleeve.

In testimony whereof I affix my signature.

FRANCIS W. D'OLIER.