

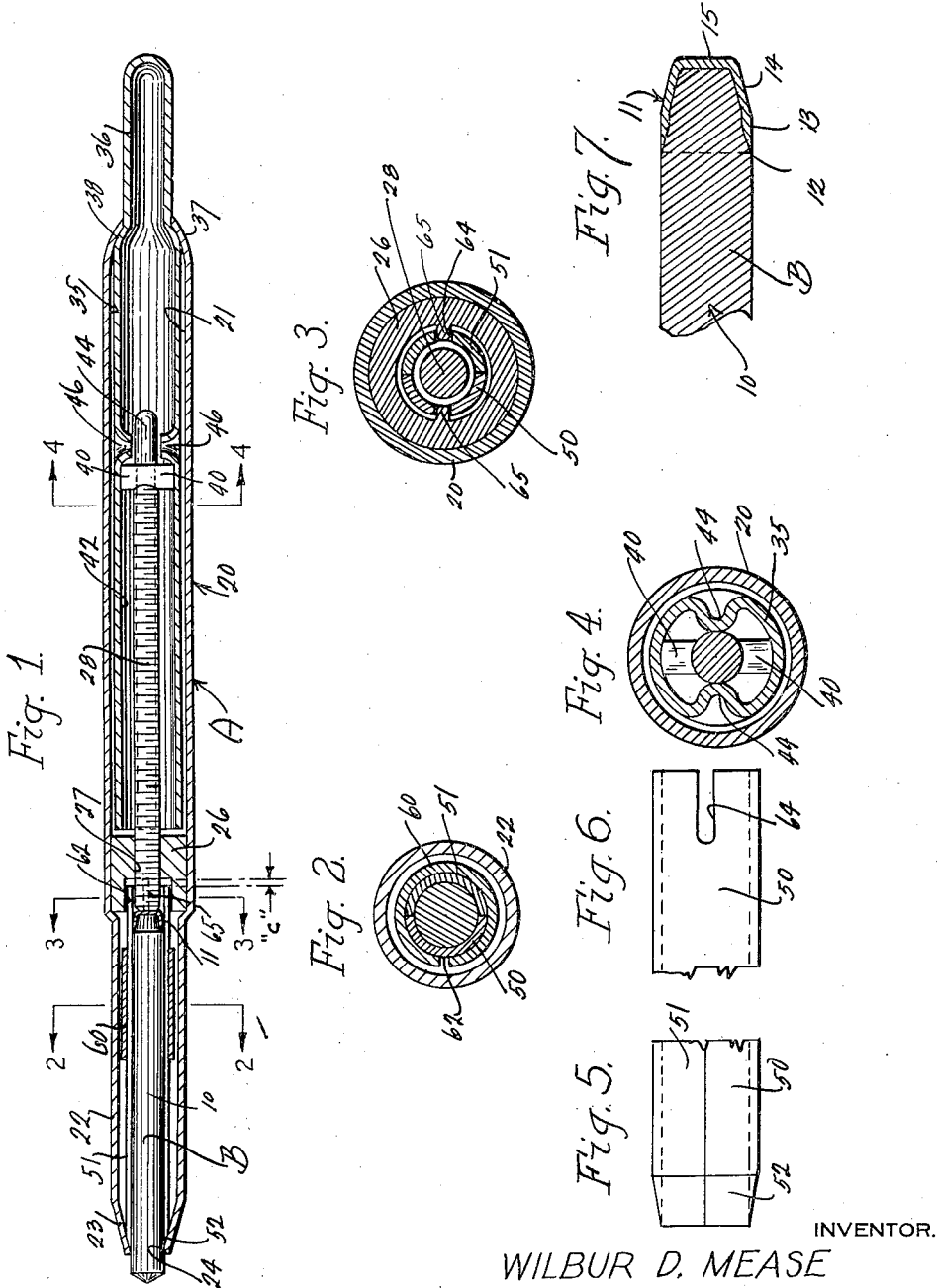
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W. D. MEASE

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CRAYON HOLDER WITH SCREW FEED TYPE ADJUSTING MEANS

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INVENTOR.

WILBUR D. MEASE

BY *Lancaster, Allen & Rommel*
ATTORNEYS

UNITED STATES PATENT OFFICE

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CRAYON HOLDER WITH SCREW FEED TYPE
ADJUSTING MEANS

Wilbur D. Mease, Hayward, Calif.

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This invention relates to improvements in mechanical writing implements.

The primary object of this invention is the provision of a mechanical writing implement adapted to receive marking crayon having improved means for feeding and protecting the crayon against disintegration during the feeding thereof.

A further object of this invention is the provision of a mechanical pencil adapted to receive writing crayon of the type known as grease lead or china marking lead embodying improved means for sealing the lead against disintegration as a result of mechanical feeding of it through the pencil.

Other objects and advantages of the invention will be apparent from the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein the same reference characters designate the same parts throughout the several views,

Figure 1 is a longitudinal cross sectional view taken through the improved pencil.

Figures 2, 3 and 4 are transverse cross sectional views taken substantially on their respective lines shown in Figure 1 of the drawing.

Figure 5 is a fragmentary end view of a sleeve or sheath adapted to house the lead.

Figure 6 is a side elevation of part of the rear end of the sleeve or sheath; this view being taken at a turned angle of 90° with respect to the view shown in Figure 5.

Figure 7 is a fragmentary sectional view taken longitudinally through the rear end of the crayon showing an improved protecting shield therefor.

In the drawing wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the improved pencil adapted to receive crayon B of the grease or china marking type. This type of crayon is well known in the art and because of its softness it is apt to crumble as an incident of feeding thereof through the pencil. In some instances particles of the crayon adhere to the walls of the sheath or sleeve housing the same and this sooner or later gets into the feeding mechanism. One of the most serious disadvantages of feeding this sort of crayon is because the impelling or feeding mechanism coming into direct contact with the crayon will cause the inner end to crumble and disintegrate. This is at the inner end, and of course the particles have a tendency to lodge at the inner end of the feeding mechanism and to clog the pencil.

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The writing element B preferably consists of the body or stick 10 which in cross section is generally circular altho not necessarily so. The diameter is rather large compared to ordinary pencil lead, as is well understood in the art. While the feeding mechanism and the associated features housing the lead are important, one of the principal features of the invention is the provision upon the body 10, at the rear end, of a shield 11, preferably of metal, plastic or some other rigid material. It is of ferrule formation and has a forward chisel edge 12 which may lie flush with the external surfacing of the body 10 or slightly project radially outwardly therefrom, altho this is not necessary since it is intended that the ferrule will fit closely at its surfaces 13 in snug engagement with the inner confines or surface of the sleeve or sheath housing the same, as shown in Figure 1. The rear end of the ferrule or shield 11 is rearwardly convergently tapered at 14 and terminates in an end wall 15. This reduction enables the ready insertion of the marking crayon into the pencil magazine or sheath. Of course the shield is preferably an attached part of the body 10 and it is intended that these portions 10 and 11 will be sold as a unit for refill purposes.

Referring to the pencil A, the same includes a main casing structure 20 defining a chamber 21 therein; the casing 20 at its forward end 22 being reduced and at its extreme forward tip 23 being tapered forwardly convergently and defining an opening 24 which is just slightly larger than the diameter of the body 10. Intermediate its ends and preferably adjacent the juncture of the larger diametered portion of the body 20 with the portion 22 there is located a wall or portion 26 having a screw threaded opening 27 therein adapted to receive the impeller screw or member 28. The latter is supported within a frame 35 which is rotatably disposed in the compartment 21 and is reduced at its outer end at 36. The rear end portion 37 of the casing 20 is peened or turned over the shoulder 38 formed at the juncture of the portion 36 with the body of the frame 35 in order to rotatably retain the frame 35 in the housing 20, at the time of fabrication or assemblage.

The feed screw 28 at its rear end is provided with opposite radial extensions 40, shown in Figure 4 and also Figure 1, which slide along the passageway 42 of the frame 35. The latter is indented longitudinally at 44, to provide abutments which will not permit relative rotation of the feed screw with respect to the frame 35 when

the latter is rotated for feeding the screw. In addition the frame 35 is provided with integral lugs 46 which limit the rear movement of the impeller or feed screw to the position shown in Figure 1.

The sheath structure for receiving the writing stick B may consist of an elongated unsplit sleeve or it may consist of the structure shown in the drawing which comprises segmental sleeve providing complementary portions 50 and 51 having an external taper 52 at the fore ends. This slope is the same as the taper of the inner wall at the tapered end 23 of the casing 20 and limits the forward movement of the sheath or sleeve. When in this position the side edges of the complementary parts 50 and 51 are in close abutment and do not provide any space therebetween. Upon the complementary portions 50 and 51 of the sheath I provide a contracting clip 60 which is split at a portion 62 and which contracts the segments 50 and 51 into cylindrical sleeve-like form; the normal position of the same being shown in Figures 1, 2 and 3 of the drawing. This split arrangement of the sheath or sleeve is provided for the purpose of facilitating ingress of the marking crayon or assemblage B into the sheath. The nut or wall 26 is provided with a counter-bore 62, shown in Figure 1, into which the rear end of the sheath extends for free sliding movement; the rear end of the sheath sections 50 and 51 being slotted at 64 and receiving bosses or splines 65, shown in Figure 3, for the purpose of preventing rotation of the sheath and its complementary parts 50 and 51 with a range of longitudinal movement of the sheath or sleeve within the pencil casing. It will be noted that a space c occurs between the rear edge of the sheath and the end of the countersink 62 and this distance defines the play which the sheath or sleeve has within the pencil casing.

In order to insert a marking assemblage B with facility into the pencil casing, it is merely necessary to have the feeding impeller in the position shown in Figure 1, or substantially retracted. The crayon is then inserted with its shield 11 first, and the tapered shape of the shield will guide the element into the sleeve without damaging the crayon. This action will move the sleeve sections 50 and 51 rearwardly and cause their radial expansion should such be necessary in order to enable and facilitate the entrance of the crayon into the sheath without damaging the crayon. When the crayon is fully inserted it is merely necessary to relatively turn the feeding frame 35 within the casing through the handle extension 36 and this will thread the impeller screw 28 through the nut 26 into engagement with the wall 15 of the shield 11. Due to frictional engagement of the marking assemblage B within the sheath, the latter will be moved forwardly until the tapered end 52 engages the tapered wall 23 of the casing of the pencil. This will counteract any tendency of the sheath to expand, particularly at the fore end, and the clip 60 will hold the sheath sections 50 and 51 contracted. The feeding may proceed and it will be noted that there will be no crumbling and distortion of the body 10 of the crayon as a result of engagement of the impeller screw 28 since it only contracts the metal or other rigid shield 11. The chisel edge 12 of the shield closely engages the inner walls of the sleeve and prevents any accumulation of material from the walls of the body 10 upon the shield. In other words, the shield will scrape the walls of the sleeve clean. The spring

action of the clip 60 is sufficient to maintain the sleeve sections longitudinally closed upon the crayon during the feeding action.

Various changes in the shape, size and arrangement of parts may be made to the form of invention herein shown and described without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. As an article of manufacture an elongated body of self-sustained but soft writing material having an end thereof provided with an impeller contacting shield of other protecting material, the forward surface of which extends at least flush with the outer surface of the writing material and has a chisel edge.

2. In a mechanical pencil the combination of an elongated casing, feeding means carried by the casing, an elongated sheath within the casing, and a writing element longitudinally slidable in said sheath in frictional contact with the inner walls thereof having a protecting shield on the inner end thereof facing the feeding mechanism and adapted to be contacted thereby to feed the writing element through the sheath, said shield having a forward edge in close scraping contact with the inner walls of said sheath for the purpose of cleaning said walls as the writing element is fed by the feeding mechanism through said sheath.

3. In a mechanical writing implement the combination of an elongated casing having a threaded opening therein, feeding means rotatably supported by the casing including a screw threaded member threaded in said opening, a longitudinally split sheath, means normally contracting said split sheath to entirely close the split thereof, said sheath being mounted in said casing for slight longitudinal movement therein, means at the fore end of the casing to normally contract the sheath when moved to its most outward position at the fore end of the casing, and a writing element frictionally supported within said sheath in position to be engaged by said feeding means for feeding it through the sheath.

4. In a mechanical writing element the combination of an elongated casing having a threaded opening therein, feeding means rotatably supported by the casing including a screw threaded member threaded in said opening, a longitudinally split sheath, means normally contracting said split sheath to entirely close the split thereof, said sheath being mounted in said casing for slight longitudinal movement therein, means at the fore end of the casing to normally contract the sheath when moved to its most outward position at the fore end of the casing, and a writing element frictionally supported within said sheath, said writing element at its inner end having a protecting wall of non-crumbling material adapted to be engaged by said screw of the feeding means to feed the writing element through said sheath.

5. In a mechanical writing element the combination of an elongated casing having a threaded opening therein, feeding means rotatably supported by the casing including a screw threaded member threaded in said opening, a longitudinally split sheath, means normally contracting said split sheath to entirely close the split thereof, said sheath being mounted in said casing for slight longitudinal movement therein, means at the fore end of the casing to normally contract the sheath when moved to its most outward position at the fore end of the casing, a writing

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element frictionally supported within said sheath, in position to be fed through said sheath by the feeding means, and means to prevent rotation of the sheath within said casing.

6. As an article of manufacture an elongated body of self-sustained but soft writing material, and an impeller contacting shield of rigid protecting material mounted on an end of the writing material having an end wall covering the extreme end of the writing material and side walls tapering convergently towards said wall, the edges of the side walls remote from the end wall terminating in a sharp edge which lies substantially flush with the outer peripheral surface of the writing material.

7. In a mechanical pencil the combination of an elongated casing, means carried in the casing including an impeller for feeding longitudinally thru the casing, an expansible sheath mounted in the fore end of the casing means in engagement with said sheath acting to normally contract said sheath, an elongated cylindrical writing element of self-sustained but soft material frictionally slidably mounted within said sheath, and a cup-shaped protecting ferrule of rigid material mounted over the inner end of said writing material in position to be engaged by said impeller and fed thru said sheath for writing extension from said casing.

8. In a mechanical pencil the combination of

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an elongated casing, means carried in the casing including an impeller for feeding longitudinally thru the casing, an expansible sheath mounted in the fore end of the casing, means in engagement with said sheath acting to normally contract said sheath, an elongated cylindrical writing element of self-sustained but soft material frictionally slidably mounted within said sheath, and a cup-shaped protecting ferrule of rigid material mounted over the inner end of said writing material in position to be engaged by said impeller and fed thru said sheath for writing extension from said casing, said ferrule having a forward edge in scraping engagement with the inner peripheral surfaces of said sheath for scraping the sheath clean as the writing material is fed by the impeller thru said sheath.

WILBUR D. MEASE.

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