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Hori et al.

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[54] **MECHANICAL PENCIL**

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May 11, 1971 Japan 46/37591

[52] **U.S. Cl.** **401/67**

[51] **Int. Cl.** **B43k 21/22**

[58] **Field of Search** 401/65–67, 53, 58, 92–94

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Primary Examiner—Lawrence Charles

Attorney—R. D. Flynn et al.

[57] **ABSTRACT**

A mechanical pencil comprising a cartridge slidably inserted into the lower part of a barrel and containing a piece of pencil lead; a needle member for normally restricting the upward movement of said pencil lead; and a chuck for causing said cartridge to project from the lower end of the barrel upon depression of a push button mounted at the upper end of the barrel and for normally holding said needle member in position, whereby said cartridge and pencil lead may be jointly replaced when the latter is fully consumed.

15 Claims, 3 Drawing Figures

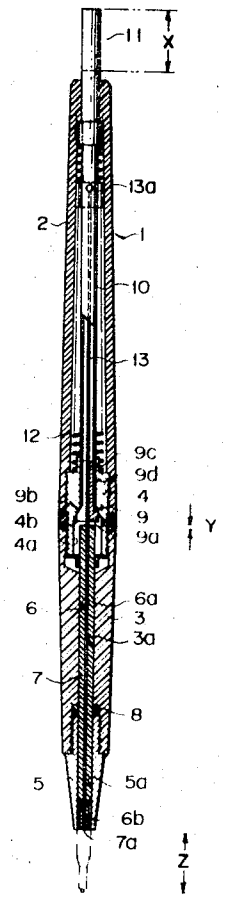

FIG. 1

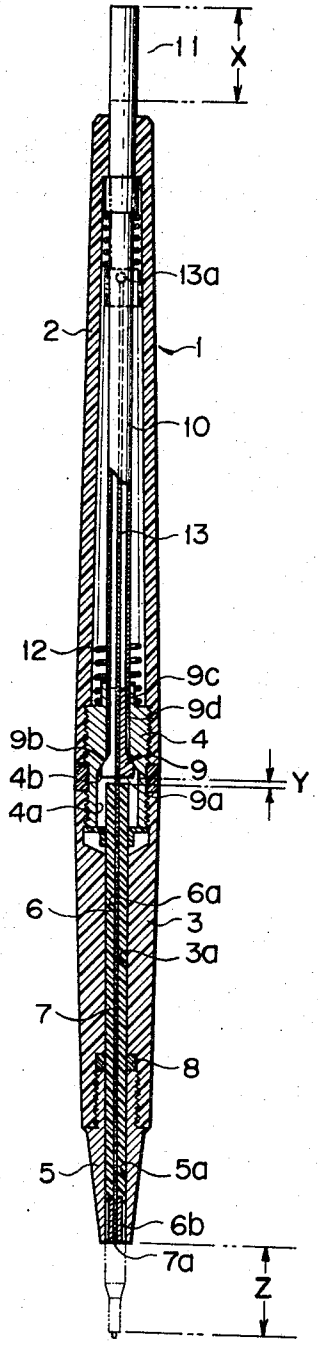
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FIG. 2

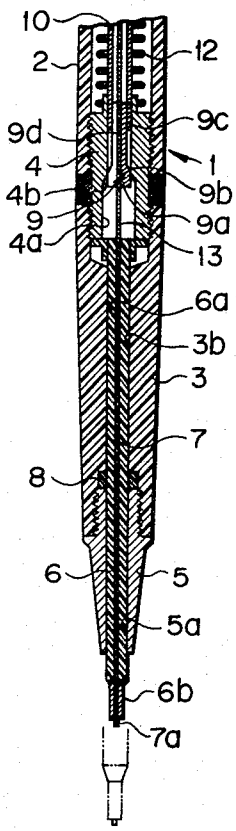
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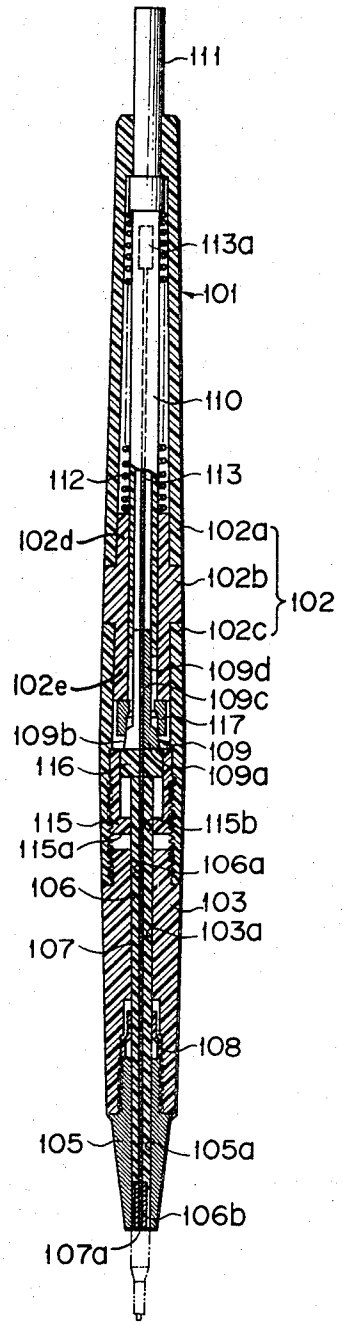
FIG. 3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115b
115a
106a
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103
103a
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108
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105a
106b
107a

MECHANICAL PENCIL

BACKGROUND OF THE INVENTION

This invention relates to a mechanical pencil and more particularly to a mechanical pencil wherein the insertion and withdrawal of a piece of pencil lead can be easily effected simply by depressing a push button.

Some of the conventional mechanical or propelling pencils are so constructed that the lower end of a barrel contains a chuck which normally holds a piece of pencil lead and the depression of a push button disposed at the upper end of the barrel causes the pencil lead to project from the tip end of a pencil body for a required length.

However, this type of mechanical pencil has the drawback that since the pencil lead can not be allowed to project appreciably from the tip end of a pencil body to prevent the possible breakage of the pencil lead, the push button has to be often depressed during writing to draw out the pencil lead. Further, the lead should have an additional or unnecessary length at least to match the length of a bore penetrating the tip member of the pencil body plus that of a chuck including its pinch portion in order to be securely held by the chuck. Therefore, when the lead is consumed until there is only left said additional length, it can no longer be used in writing, but has to be replaced by a fresh piece. This means that said additional length of the pencil lead is simply wasted.

With the prior art mechanical pencils, there are stored several spare pieces of pencil lead in a reservoir provided in the barrel. With this type, exhaustion of pencil lead is often unnoticed. Some pieces may be broken while received in the reservoir, or some curved pieces may be stocked. Such curved piece sometimes fails to be easily drawn out of the tip end of the pencil body even when the push button is depressed.

It is accordingly an object of this invention to provide a mechanical pencil which rarely allows a piece of pencil lead to be broken and eliminates the necessity of depressing the push button during writing so repeatedly as in the prior art mechanical pencil to draw out the pencil lead.

Another object of the invention is to provide a mechanical pencil which enables substantially all the pencil lead to be used, offering great saving on its consumption.

Still another object of the invention is to provide a mechanical pencil which enables pencil lead alone or together with a cartridge to be very easily replaced.

SUMMARY OF THE INVENTION

A mechanical pencil according to this invention has a pencil lead cartridge coaxially inserted into the lower part of a barrel. The cartridge frictionally engages a bushing elastically and forcefully holding the periphery of said cartridge. Into the cartridge is slidably inserted a piece of pencil lead coaxially in the lengthwise direction.

In the barrel above the cartridge is disposed a chuck coaxially with the cartridge. The chuck is so designed as to move lengthwise by the operation of a push button fitted at the upper end of the barrel. Substantially at the middle part of the barrel is received a sleeve. Between the upper end of the sleeve and the lower end of the push button is stretched a compression spring to normally urge the chuck upward.

When the push button is not depressed, the shoulders of the chuck are pressed against an abutment provided in the chuck sleeve by the action of the compression spring so as to keep the chuck closed. Upon depression of the push button, the chuck is brought downward against the force of the compression spring and opened due to disengagement of the shoulders from the abutment. The chuck is penetrated coaxially with the barrel by a needle member narrower than or as narrow as the pencil lead and at least as long as the cartridge. The needle member is firmly held by the chuck when it is closed and moves lengthwise of the barrel when the chuck is opened.

BRIEF DESCRIPTION OF THE DRAWING

The present invention can be more fully understood from the following detailed description when taken in connection with the accompanying drawing, in which;

FIG. 1 is a cross-sectional view of an embodiment of a mechanical pencil according to the present invention;

FIG. 2 is an enlarged partial view of the principle portion of FIG. 1; and

FIG. 3 is a cross-sectional view of another embodiment of a mechanical pencil of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Throughout FIGS. 1 and 2, the barrel of a mechanical pencil according to the present invention is generally designated by numeral 1. The barrel comprises a hollow cylindrical upper barrel member 2 and a cylindrical lower barrel member 3 having a through hole 3*a* provided therein.

A chuck sleeve 4 has male screw threads formed along its periphery. With these male screw threads are engaged female screw threads formed in the lower inner walls of the upper barrel member 2 and those of the lower barrel member 3. These barrel members 2 and 3 may be made into a substantially integral barrel 1. The lower barrel member 3 preferably consists of transparent plastic material.

To the end portion of the lower barrel member 3 is screwed a metallic tip 5 of the same type as that used in the conventional mechanical pencil. The tip 5 is perforated with a through hole 5*a* coaxial with the through hole 3*a* in the lower barrel member 3 and having the same diameter as the latter hole 3*a*.

Numeral 6 denotes a tubular cartridge of plastic material having a piece of pencil lead 7 inserted into its through hole 6*a*, said cartridge 6 being adapted, for example, to be thrown away after use. This cartridge 6 is slidably inserted lengthwise of the aforesaid through holes 3*a* and 5*a* and is fitted at the front end with a metallic tubular piece 6*b*. The cartridge 6 should preferably be formed of plastic material which is sufficiently transparent to see how much of the pencil lead contained therein has been consumed, and, as described above, is adapted to be thrown away after use. Numeral 7*a* is a pencil point. At that part of the inner walls of the lower barrel member 3 which faces the upper end of the tip 5 is disposed an annular bushing or a brake member 8 for holding the cartridge 6 loosely as well as elastically so as to prevent the cartridge 6 from projecting from the tip 5, so long as the mechanical pencil is only subjected to slight shaking or impact.

The chuck sleeve **4** is bored with a through hole **4***a* coaxial with the barrel **1**. This through hole **4***a* has a relatively larger diameter in the section extending from the lower end to the substantially middle portion than in the other section. The inner walls of the middle portion of said hole **4***a* define a conically tapered abutment **4***b* whose radius is progressively reduced toward the top.

Numeral **9** is a chuck having an inverted funnel shape. The large diameter portion of the lower end is divided in cross section into, for example, three equal parts which constitute jaws **9***a* elastically expansible to the outside. The conically tapered shoulders **9***b* forming the upper end portion of the jaws **9***a* are made engageable with the chuck abutment **4***b*. The stock **9***c* of the chuck extends upward. The chuck **9** is perforated with a through hole **9***d* coaxial with the barrel **1**. Said through hole **9***d* has a sufficient diameter for a needle member **13** to pass therethrough without any obstruction when the chuck is opened.

Into the upper barrel member **2** is fitted a guide tube **10**, to the upper end of which there is screwed a push button **11** extending upward from the upper end of the barrel **1**. To the lower end of tube **10** is fixed the upper portion of the chuck stock **9***c*. Between the lower end of the push button **11** and the upper end face of the sleeve **4** is stretched a compression spring **12** surrounding the guide tube **10** so as to urge the chuck **9** upward through the guide tube **10**.

The needle member **13** is received in the guide tube **10**. When the push button **11** is depressed to open the chuck **9**, the needle member **13** moves lengthwise of the barrel **1** and, when the push button **11** is released, is lifted by the force of the spring **12**, causing the shoulders **9***b* of the chuck **9** to be pressed against the chuck abutment **4***b* and in consequence the jaws **9***a* thereof to be closed. As a result, the needle member **13** is firmly held by the jaws **9***a*. The needle member **13** has a slightly smaller diameter than or the same diameter as that of the through hole **6***a* of the cartridge **6**. The upper end of the needle member **13** forms a stop or a stop member **13***a* having a larger diameter than that of the upper opening of the through hole **9***a* of the chuck **9** so as not to be drawn out of the guide tube **10**. The needle member **13** has such a length as it projects just slightly from the furthest end of the tip **5** when said needle member **13** is brought to its lowest position.

There will now be described the operation of the mechanical pencil according to this invention. When the push button **11** is depressed with the tip **5** of the pencil body kept down, the chuck **9**, together with the guide tube **10**, is brought downward to an extent equal to the depression X of the push button **11**. As a result, the end face of the jaws **9***a* of the chuck **9** urges downward the upper end of the cartridge **6** to cause its lower end to project from the tip **5**. With Y taken to represent a distance between the upper end of the cartridge **6** and the end face of the jaws **9***a* of the chuck **9** before the push button is depressed, then the projection Z of the cartridge **6** may be expressed as

$$Z = X - Y$$

Accordingly, adjustment of the depression X of the push button **11** enables the projection Z of the cartridge **6** from the tip **5** to be varied.

Depression of the push button **11** and consequently the chuck **9** causes the shoulders **9***b* of the chuck **9** to be disengaged from the abutment **4***b* of the chuck sleeve **4**. Accordingly, the chuck jaws **9***a* are elastically opened to allow the needle member **13** to fall gravitationally and abut against the upper end of the pencil lead **7** received in the cartridge **6**.

When released, the push button **11**, as well as the guide tube **10** and chuck **9**, is brought back to the original position by the biasing force of the compression spring **12**. Since, at this time, the shoulders **9***b* of the chuck **9** are pressed against the abutment **4***b*, the jaws **9***a* are closed to hold the needle member **13** again. However, the cartridge **6** is still in a state projecting from the tip **5** and the lower end of the needle member **13** remains pressed against the upper end of the pencil lead **7**.

When, under such condition, the furthest end of the tubular piece **6***b* of the cartridge **6** is made to touch a sheet of paper or similar material, then the cartridge **6** is lifted just slightly by contact pressure to cause the pencil point **7***a* to appear to the outside as illustrated in FIG. **2**. Since the cartridge **6** is frictionally engaged with the bushing **8**, it is prevented during writing from projecting from the tip **5** with ease or falling off the pencil body. Moreover, the upper end of the pencil lead **7** contacts the needle member **13** firmly held by the chuck **9**, the pencil lead **7** is prevented from being drawn into the lower barrel member **3** even when it is subjected to the aforesaid contact pressure or writing pressure.

While continued writing wears the pencil lead **7**, the writing surface of paper or similar material pushes the forward end of the tubular piece **6***b* to lift the cartridge **6**, thus causing a fresh pencil point **7** to be always brought to the forward end of the tubular piece **6***b*. When the pencil lead **7** is worn up to the forward end of the tip **5**, it is only required to depress the push button **11** so as to draw forward the pencil lead together with the cartridge **6**. It will be apparent, therefore, that if the depression of the push button **11** is so adjusted as to increase the feed of the cartridge **6**, then there will be made possible far larger amounts of writing per depression of said push button **11** than with the prior art mechanical pencil. Further, the pencil point **7***a* only slightly projects from the forward end of the tubular piece **6***b* to minimize the moment applied to the pencil lead **7**, thus prevent it from being readily broken.

As apparent from the foregoing description, this invention does not cause the pencil lead **7** to be directly held by the chuck **9**, but to be delivered in contact with the needle member **13** upon depression of the push button **11**, thereby enabling the pencil lead **7** to be used to the end. As previously mentioned, depression of the push button **11** disengages the needle member **13** from the chuck **9**. When, under such condition, the pencil point **7***a* and tubular piece **6***b* are pushed upward by pressure resulting from the contact of the pencil body with writing material, then the pencil lead **7** is drawn into the lower barrel member **3** together with the cartridge **6** while pushing the needle member **13**. Though, upon release of the push button **11**, the chuck **9** again holds the needle member **13**, the cartridge **6** and pencil lead **7** remain retracted into the lower barrel member **3**. The above-mentioned operation enables the pencil

lead 7 together with the cartridge 6 to be securely kept in the lower barrel member 3 when the mechanical pencil is not used. When the cartridge 6 is drawn out by hand for a desired length as indicated by dotted lines in FIG. 2 with the push button 11 depressed, then the needle member 13 naturally descends to the upper end of the pencil lead 7. Upon release of the push button 11, the needle member 13 is held by the chuck 9 to prevent the pencil lead 7 from being drawn back into the lower barrel member 3. This procedure enables a longer portion of the pencil lead 7 to be used until the push button 11 is depressed a second time than when the pencil lead 7 is drawn out solely by depression of the push button 11 without using the band. This eliminates the necessity of repeatedly depressing the push button 11, as in the case of the conventional mechanical pencil, when there has to be drawn an extremely long line as in drafting.

For the makeup of fresh pencil lead, it is possible to remove the cartridge 6 from the tip end 5 and insert a fresh cartridge containing pencil lead into the lower barrel member 3 from said tip end 5 or to introduce fresh pencil lead alone from said tip end 5 into a cartridge 6 still remaining in the lower barrel member 3.

If the cartridge 6 and lower barrel member 3 are made of transparent material, the condition of the pencil lead received in the lower barrel member 3 can be observed from the outside, providing warning that exhaustion of the lead is impending.

FIG. 3 illustrates a mechanical pencil according to another embodiment of this invention. To avoid duplication of description, the parts of FIG. 3 corresponding to those of FIGS. 1 and 2 bear reference numerals consisting of the original numerals to which there has been added a number of 100. Unless otherwise noted, the parts of FIG. 3 have the same shape and function as those of the preceding embodiment of FIGS. 1 and 2.

The barrel 101 of the mechanical pencil comprises an upper barrel member 102 and a lower barrel member 103 threadably engaged at the upper portion with the lower portion of the upper barrel member. Said upper barrel member 102 consists of first, second and third hollow cylindrical portions 102*a*, 102*b* and 102*c*. The second cylindrical portion 102*b* is disposed substantially at the middle part of the barrel 101 slightly above the chuck stock 109*c*, and has cylindrical bosses 102*d*, 102*e* of small diameter formed at the upper and lower ends. The upper boss 102*d* is securely fitted into the lower end portion of the first cylindrical portion 102*a* and the lower boss 102*e* into the upper end portion of the third cylindrical portion 102*c*. Thus, these first, second and third cylindrical portions 102*a*, 102*b* and 102*c* are substantially formed into an integral body. The second cylindrical portion 102*b* has a through hole for allowing a cylindrical guide tube 110 to slide therethrough.

The embodiment of FIG. 3 includes an axially movable chuck sleeve 117 surrounding the stock 109*c* of the chuck 109 instead of the stationary sleeve 4 used in the embodiment of FIGS. 1 and 2. Said chuck sleeve 117 has a coaxial through hole provided at the lower end with an abutment mating the shoulders 109*b* of the chuck 109.

When the push button 111 is released, the upper end of the chuck sleeve 117 is pressed against the end of the lower boss of the second cylindrical portion 102, while the lower end of the chuck sleeve 117 is slightly tapered on the inside to fit in with the chuck shoulders 109*b* for abutment thereon. Accordingly, the chuck 109 is normally closed to hold the needle member 113 which has passed through the hole 109*d* of the chuck 109.

Numeral 115 is a hollow cylindrical abutment member with a blind lower end 115*a* screwed to the lower end of the third cylindrical portion 102*c*. Upon depression of the push button 111, the jaws 109*a* of the chuck 109 are brought into said hollow cylindrical abutment member 115. In this member 115 is received a ring guide member 116 perforated with a coaxial through hole to guide the needle member 113 for alignment with the pencil lead 107. The blind end 115*a* is bored with an aperture 115*b* slidably to receive the cartridge 106.

The cartridge 106 is also slidably received in a metallic tubular piece 106*b* which is disposed in a hole 105*a* bored through a tip 105 connected to the lower end of the lower barrel member 103.

When the push button 111 of the mechanical pencil is depressed with the tip 105 thereof kept down, then the chuck 109 is opened by being disengaged from the ring sleeve 117, causing, as in the embodiment of FIGS. 1 and 2, the cartridge 106 to be drawn out of the forward end of the tip 105. As in said preceding embodiment, depression of the push button 111 causes the needle member 113 to descend on to the upper end of the pencil lead 107 if they are separated from each other, and release of said push button 111 causes the needle member 113 to obstruct the upward movement of the pencil lead 107. When the push button 111 is depressed again, the chuck 109 is brought downward. At this time, the lower end of the chuck sleeve 117, together with the chuck 109, is let down until it contacts the upper end of the hollow cylindrical abutment member 115 with said sleeve 117 engaged with the chuck shoulders 109*b* by the outward acting elastic force of the chuck 109. When the push button 111 still continues to be depressed after said contact, the chuck 109 is opened for the first time. Accordingly, the needle member 113 falls in a state held by the chuck 109 to an extent equal to the distance through which the chuck sleeve 117 travels from its position abutting against the second cylindrical portion 102*b* to its position contacting said hollow cylindrical member 115, thereby causing the point 107*a* of the pencil lead 107 to project from the tip 105 to the same extent. When, upon release of the push button 111, the chuck 109, together with the chuck sleeve 117 is lifted by the spring 112 to be pressed against said sleeve 117, then the chuck is closed by having its shoulders 109*b* immovably engaged with the tapered lower end portion of the sleeve 117, causing the needle member 113 to be held by the chuck 109 thus closed. Since, however, the chuck 109 is not closed until the chuck sleeve 117 is brought back to its original position from the point at which it abuts against the hollow cylindrical member 115, the needle member 113 remains urged downward. Therefore, each time the push button 111 is depressed after the second time, the pencil lead 107 is delivered to an extent equal to said depression, permitting an inching operation as in the conventional mechanical pencil.

If the second cylindrical portion **102***b* and the guide tube **110** are made of tansparent plastic material, the upper end of the needle member **113** is provided with a colored stop **113***a* having a larger diameter than that of the central through hole of the chuck stock **109***c*, then it is possible easily to find out from the outside the full or approximate exhaustion of the pencil lead **107** when said colored stop **113***a* is brought to the second cylindrical portion **102***b*.

A brake member indicated by **108** of FIG. **3** may consist of a large diameter section and a small diameter section split into a plurality of equal divisions along the periphery so as to be pressed against the cartridge **106**.

What we claim is:

1. A mechanical pencil comprising:

a barrel;

a tubular cartridge slidably inserted into the lower portion of said barrel lengthwise thereof and having a piece of pencil lead coaxially passing through said cartridge;

a brake member disposed in the lower portion of said barrel and acting to frictionally engage and hold said barrel and acting to frictionally engage and hold said cartridge when said cartridge is inserted thereinto;

a lengthwise movable needle member coaxially disposed in said barrel and engageable at the lower end thereof with the upper end of said pencil lead to prevent the upward movement of said lead;

depressible means slidably mounted at the upper end of said barrel;

chucking means formed substantially integral with said depressible means to normally hold in position said needle member which penetrates through said chucking means and causes the cartridge to project from the lower end of the barrel upon depression of said depressible means;

a sleeve located in said barrel to normally close said chucking means and having a through hole therein through which said needle member passes, said sleeve being disengaged from said chucking means to open said chucking means upon depression of said depressible means; and

urging means disposed between said sleeve and depressible means to urge said chucking means upward.

2. The mechanical pencil according to claim **1** wherein said sleeve has a tapered abutment in the through hole, and said chucking means is provided with jaws equally arranged in the peripheral direction, each jaw having a tapered shoulder engageable with said abutment to close said chucking means for holding said needle member and allowing the cartridge to project from the tip upon depression of said depressible means.

3. The mechanical pencil according to claim **1** wherein said barrel comprises a substantially cylindrical upper barrel member connected at the lower portion with the upper part of the sleeve, containing the chucking means as well as the needle means and slidably supporting said depressible means at the upper end thereof, and a substantially cylindrical lower barrel member having a coaxial through hole for receiving said cartridge therein.

4. The mechanical pencil according to claim **3** wherein said lower barrel member and said cartridge are made of transparent resin material.

5. The mechanical pencil according to claim **1** wherein said sleeve is normally prevented from moving upward to close said chucking means and is movable downward for a distance less than the maximum stroke of said chucking means to project the pencil lead from the lower end of the cartridge upon depression of said depressible means.

6. The mechanical pencil according to claim **1** wherein said needle member is provided with a stop member having a larger diameter than that of the through hole of said sleeve.

7. The mechanical pencil according to claim **1** further comprising a ring member under the chucking means, said ring member having a through hole therein to guide the needle member for alignment with the pencil lead in the cartridge inserted into the barrel.

8. The mechanical pencil according to claim **1** wherein said depressible means is a depressible push button.

9. A mechanical pencil comprising:

a barrel comprised of a substantially cylindrical hollow upper barrel member and a substantially cylindrical transparent hollow barrel member;

a tip disposed at the lower end of said lower barrel member;

a transparent tubular cartridge slidably and coaxially inserted into both the lower barrel member and said tip and having a piece of pencil lead coaxially passing therethrough;

an elastic ring shaped brake member disposed in the lower part of said lower barrel member to frictionally engage and hold said cartridge inserted thereinto;

a churck sleeve connecting said upper barrel member with said lower barrel member, said chuck sleeve having a through hole formed therein lengthwise of said barrel members and having a tapered abutment formed in said hole;

a depressible push button slidably fitted to the upper end of said upper barrel member;

a guide tube coaxially disposed in said upper barrel member and connected at the upper end with said push button;

a lengthwise movable needle member disposed in said guide member and engageable with the upper end of said pencil lead in the cartridge to limit the upward motion of said pencil lead;

a stop member fixed to the upper end of said needle member and having a diameter larger than that of the through hole of the sleeve;

a chuck connected at its stock portion with the lower end of said guide tube and provided with jaws equally arranged in the peripheral direction, each jaw having a shoulder engageable with said abutment of the chuck sleeve to close said chuck for holding said needle member and allowing the cartridge to project from the tip upon depression of said push button; and

a compression spring surrounding said guide tube and disposed between said chuck sleeve and said push button to urge said chuck upward.

10. A mechanical pencil comprising:

a barrel;

a tip disposed at the lower end of said barrel;

a tubular cartridge slidably and coaxially inserted into said tip and the lower portion of said barrel

and having a piece of pencil lead coaxially passing therethrough;

an elastic ring shaped brake member disposed in the lower part of said barrel to frictionally engage and hold said cartridge when it is inserted thereinto;

an axially movable chuck sleeve disposed in the barrel and having a coaxial through hole provided with a tapered abutment formed therein, the axial movement of said chuck sleeve being limited to a predetermined distance by the barrel;

a depressible push button slidably fitted to the upper end of said barrel;

a guide tube coaxially arranged in the upper portion of said barrel to be connected at the upper end with said push button;

a lengthwise movable needle member disposed in said guide member and engageable with the upper end of said pencil lead in the cartridge to limit the upward motion of said pencil lead;

a stop member fixed to the upper end of said needle member and having a diameter larger than that of the through hole of the sleeve;

a chuck connected at its stock tube with the lower end of said guide tube to move lower than the movable extent of of the chuck sleeve and provided with jaws equally arranged in the peripheral direction, each jaw having a shoulder engageable with said abutment of the chuck sleeve to close said chuck for holding said needle member and allowing the cartridge to project from the tip upon depression of said push button; and

a compression spring surrounding said guide tube and disposed in the upper portion of said barrel to urge said chuck upward.

11. A mechanical pencil comprising:

a first barrel member;

a second barrel member which includes a first cylindrical portion, a second cylindrical portion of transparent resin material having one end connected to one end of said first cylindrical portion, said second cylindrical portion having a coaxial through hole therein, and a third cylindrical portion one end of which is connected to the other end of said second cylindrical portion and the other end of which is connected to one end of said first barrel member;

a tubular cartridge having a piece of pencil lead received therein and slidably inserted into said first barrel member;

a brake member disposed in said first barrel member so as to frictionally engage and hold said cartridge;

a guide tube disposed in said first cylindrical portion of said second barrel member and having one end inserted into said through hole in the second cylindrical portion of said second barrel member;

a push button fixed to the other end of said guide tube;

a chuck disposed in said third cylindrical portion and having one end fixed to the other end of said guide tube;

a sleeve located in said third cylindrical portion of said second barrel member, both ends of said sleeve being engageable with said other end of the second cylindrical portion of the second barrel member and the chuck respectively;

a lengthwise movable needle member coaxially disposed in said guide tube and penetrating through said chuck so as to be engageable with that end of said lead pencil which faces the first cylindrical portion of said second barrel member for prevention of the movement of said pencil lead toward said first cylindrical portion;

a compression spring stretched between said second cylindrical portion of said second barrel member and said push button for urging said chuck toward said push button so as to close said chuck to hold said needle member in position; and

a hollow cylindrical abutment member so disposed in said third cylindrical portion of said second barrel member between said chuck and said first barrel member as to slidably receive said cartridge.

12. The mechanical pencil according to claim **11** further comprising a ring guide member in the abutment member, said ring guide member having a through hole therein to guide the needle member for alignment with the pencil lead in the cartridge.

13. The mechanical pencil according to claim **11** wherein said second cylindrical portion of said second barrel member is provided on both ends with bosses inserted into said one end of the first cylindrical portion of the second barrel member and said one end of the first barrel member, respectively.

14. A mechanical pencil comprising:

a barrel;

a tubular cartridge slidably inserted into the lower portion of said barrel lengthwise thereof and having a piece of pencil lead coaxially passing through said cartridge;

a lengthwise movable needle member coaxially disposed in said barrel and engageable at the lower end thereof with the upper end of said pencil lead to prevent the upward movement of said lead;

depressible means slidably mounted at the upper end of said barrel;

chucking means formed substantially integral with said depressible means to normally hold in position said needle member which penetrates through said chucking means and causes the cartridge to project from the lower end of the barrel upon depression of said depressible means;

a sleeve located in said barrel to normally close said chucking means and having a through hole therein through which said needle member passes, said sleeve being disengaged from said chucking means to open said chucking means upon depression of said depressible means;

said needle member being provided with a stop member having a larger diameter than that of the through hole of said sleeve; and

urging means disposed between said sleeve and depressible means to urge said chucking means upward.

15. The mechanical pencil according to claim **14** wherein said depressible means is a depressible push button.

* * * * *