

**MECHANICAL PENCIL WITH SHAKING  
TYPE LEAD-FEEDING MECHANISM**

Technical Field

5       The present invention relates to a mechanical pencil with a shaking type lead-feeding mechanism for forwardly moving a lead holding chuck with an inertial force of a weight upon shaking a cylindrical casing so as to feed a pencil lead.

Background Art

10       In the above-mentioned type of mechanical pencil, a weight is disposed in a cylindrical casing thereof in such a way that the weight reciprocally moves in the longitudinal direction of the cylindrical casing. When  
15 the casing is shaken in the longitudinal direction thereof, the weight is quickly moved toward a writing point. With an inertial force of the weight, a lead holding chuck is moved toward the writing point against the resilient force of a spring. Thus, the pencil lead  
20 is fed. In this type of mechanical pencil, a shoulder portion with which the weight collides and comes in contact is disposed on the chuck side. In addition, this mechanical pencil is provided with a stopper which prevents the weight from dropping out of the rear end of  
25 the cylindrical casing upon a rearward motion of the weight due to a reaction of the forward motion thereof. This stopper is formed as an outer collar on a cylindrical lead reservoir connected to the rear portion of the lead holding chuck. When the ring-shaped weight  
30 slidably mounted on the outer surface of the lead reservoir moves rearward, the stopper holds the weight.

      However, in the conventional mechanical pencil with the shaking type lead-feeding mechanism, whenever the weight moves rearward and comes in contact with the  
35 stopper, the lead reservoir also moves rearward due to a rearward shock applied thereto. Thus, the chuck also moves rearward. At this time, the chuck is closed

instantaneously by a tightening ring. As a result, the pencil lead in the chuck is sometimes damaged or broken thereby.

Moreover, this type of mechanical pencil is also provided with a knock member at the rear end of the cylindrical casing so as to supply pencil leads and feed the pencil lead being chucked. In the construction where a rubber eraser is mounted on the knock member, when the eraser is used, the chuck is moved forward and thereby the pencil lead is fed. To solve this problem, the knock member should be urged by a spring with a relatively strong resilient force in the longitudinally rearward direction of the casing.

However, in this construction, the number of parts for use in the mechanical pencil is increased. In addition, since the mechanical pencil should be assembled in a state where the spring is compressed, the productivity of the mechanical pencil is degraded, thereby raising the cost thereof. Moreover, when the knock member is knocked to feed the lead, the spring with the relatively strong resilient force should be compressed by the knock member. Therefore, the finger of the user for knocking the knock member sometimes hurts. On the other hand, in the construction where the eraser is knocked as a part of the knock member, if a short eraser floats from the bottom of the hole of an eraser holder, the eraser may sink into the eraser holder.

The present invention is made from the above-mentioned point of view. An object of the present invention is to provide a mechanical pencil with a shaking type lead-feeding mechanism where the rearward motion of the weight neither causes the chuck to damage or break a pencil lead therein, nor requires a strong force for the operation of the knock member.

#### Disclosure of the Invention

A mechanical pencil with a shaking type lead-feeding mechanism, according to the present invention, comprises a

cylindrical casing having a front end portion for writing and a rear end portion; a lead holding chuck disposed in said cylindrical casing adjacent to said front end portion; a chuck spring provided in said casing to urge the lead holding chuck rearward with a relatively small force; a lead reservoir connected to a rear portion of said lead holding chuck for storing a pencil lead to be fed to said chuck; a weight reciprocally movable in a longitudinal direction of said cylindrical casing along said lead reservoir, for applying an inertial force to said chuck when said casing is shaken, said inertial force causing said chuck to feed said pencil lead; and a knock member disposed at said rear end portion of said casing so as to be abutted by said lead reservoir; wherein said mechanical pencil comprises; a cylindrical portion protruding forward from said knock member and fitted in said rear end portion of said casing, said cylindrical portion being slidable in the longitudinal direction of said casing; an opening window formed adjacent to said rear end portion of the casing so as to extend in the longitudinal direction of the casing; stop means protruding radially outward from said cylindrical portion and engaging in said opening window in such a way that the stop means is slidable in the longitudinal direction of the casing and said knock member is thereby slidable freely without restraint in the longitudinal direction of the casing, said cylindrical portion having a resilient piece on which said stop means is

formed; the front end of said cylindrical portion being opposed to the rear end of said weight in the longitudinal direction of said casing, so as to be capable of contacting the rear end of said weight; and said knock member comprising a cylindrical large diameter portion and a small diameter front portion, said small diameter front portion protruding forward from said large diameter portion so as to form said cylindrical portion.

With reference to the accompanying drawings, embodiments of the present invention will now be described.

#### Brief Description of the Drawings

Fig. 1 is a longitudinal sectional view showing an embodiment of the present invention;

Fig. 2 is a plan view showing an eraser holder of the embodiment of Fig. 1;

Fig. 3 is an enlarged sectional view showing a chuck shown in Fig. 1;

Fig. 4 is a partial sectional view showing another embodiment of the present invention;

Fig. 5 is a plan view of Fig. 4;

Fig. 6 is a sectional view taken along line VI-VI of Fig. 4;

Fig. 7 is a sectional view taken along line VII-VII of Fig. 4;

Fig. 8 is a partial plan view showing the state of a

forward movement of the eraser holder of the embodiment of Fig. 5;

Fig. 9 is partial sectional view showing a further embodiment of the present invention;

Fig. 10 is a plan view of Fig. 9;

Fig. 11 is a sectional view showing another embodiment of the present invention;

Fig. 12 is a sectional view showing a further embodiment of the present invention;

Fig. 13 is a sectional view showing a further embodiment of the present invention;

Fig. 14 is a sectional view taken along line XV-XV of Fig. 13;

Fig. 15 is a sectional view showing another embodiment of the present invention; having a knock member without an eraser;

Fig. 16 is a plan view showing only the knock member of the embodiment of Fig. 15;

Fig. 17 is a partial sectional view showing a further embodiment, having a knock member without an eraser of the present invention;

Fig. 18 is a partial sectional view showing a further embodiment of the present invention;

Fig. 19 is a perspective view showing a modification of a knock member with an eraser;

Fig. 20 is a sectional view of Fig. 19;

Fig. 21 is a rear view of Fig. 19;

Fig. 22 is a plan view of Fig. 19;

Fig. 23 is a sectional view showing a further example of a knock member with an eraser;

Fig. 24 is a sectional view of an embodiment having a detachable cap mounted on the front end of a cylindrical casing;

Fig. 25 is a plan view showing the state where a cap is mounted on the rear end of the cylindrical casing of Fig. 24; and

Fig. 26 is a partial sectional view showing an embodiment which has a cap attachable to a writing point.

#### Best Modes for Carrying out the Invention

Figs. 1, 2 and 3 show an embodiment of the present invention. At the front of a cylindrical casing 1, a mouth ring 2 is screwed. In the mouth ring 2, a lead holder 4 which lightly holds a pencil lead 3 is provided. A washer 5 is securely held between an inner shoulder 2A of the mouth ring 2 and a front end 1A of the cylindrical casing 1. A tightening ring 6 is movably provided between the washer 5 and an abutment shoulder 2B of the mouth ring 2. A front end head portion 7A of a lead holding chuck 7 made of a metal is inserted into the tightening ring 6.

As shown in Fig. 3, the head portion 7a of the chuck 7 has a tapered outer surface 7D and is divided by a longitudinal slit 7E. At the rear of the chuck 7, a connector 8 made of a synthetic resin is securely connected. A chuck spring 9 which has a relatively weak resilient force

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is tensioned between the washer 5 and an outer collar 8a at the front end of the connector 8. The chuck 7 is normally pressed rearward with the resilient force of the chuck spring 9. The head portion 7A of the chuck is pushed to the tightening ring 6. Thus, the head portion 7A is closed and holds the pencil lead 3. At the rear of the chuck 7, a protrusion 7C is formed. The front surface of the protrusion 7C is perpendicular to the longitudinal direction of the cylindrical casing 1,

the rear surface thereof being oblique. The rear portion of the chuck 7 is pressure-inserted into an inner hole disposed at the front of the connector 8. When the chuck 7 is pressure-inserted into the connector 8, the chuck 7 is positioned so that the length L from the front end of the chuck 7 to the rear end of the connector 8 becomes a predetermined value. As shown in Fig. 1, the rear end of the connector 8 is connected to a cylindrical lead reservoir 10 for storing leads. A weight 11 is mounted on the lead reservoir 10 in such a way that the weight 11 can move in the longitudinal direction of the lead reservoir 10. The connector 8 and the lead reservoir 10 may be integrally formed of the same material.

At the rear end of the cylindrical casing 1, an eraser holder 12 which holds a rubber eraser 13 in a rear hole 12A thereof is disposed. This eraser holder 12 and the rubber eraser 13 constitute a knock member. At a cylindrical small diameter front portion 12B of the eraser holder 12, a resilient piece 12C is formed by a U-shaped cutout as shown in Fig. 2. On the resilient piece 12C, a stop portion 12D protruding in the radial direction thereof is formed. The middle position in the longitudinal direction of the stop portion 12D is most protruded. The most protruded portion of the stop portion 12D is protruded out of the cylindrical casing 1. At the front of the stop portion 12D, an oblique surface 12J is formed. The small diameter front portion 12B of the eraser holder 12 is inserted in the rear end of the cylindrical casing 1. The stop portion 12D of the eraser holder 12 is mounted on an opening window 1B as an engagement means formed at the rear of the cylindrical casing 1 in such a way that the stop portion 12D can move in the longitudinal direction of the cylindrical casing 1 by an appropriate distance. The rear end of the opening window 1B of the cylindrical casing 1 is adapted to abut against the rear end surface of the stop portion 12D of the eraser holder 12. Thus, the eraser holder 12 does

not drop rearwardly of the cylindrical casing 1. As a result, the weight 11 can slide between an outer collar 8B of the connector 8 and the eraser holder 12 in the longitudinal direction of the cylindrical casing 1.

5 Although the rear end of the lead reservoir 10 is shown as being spaced from an inner collar 12E of the eraser holder 12, they can be connected with or slightly separated from each other.

10 In this embodiment, to feed the pencil lead 3, the cylindrical casing 1 is shaken and thereby an inertial force is produced. Thus, the weight 11 is moved forward and thereby the weight 11 comes in contact with the outer collar 8B of the connector 8. As a result, the inertial force of the weight 11 causes the chuck spring 9 to be  
15 compressed, resulting in moving the chuck 7 forward and feeding the pencil lead 3. When the weight 11 comes in contact with the connector 8, the weight moves back rearward due to a reaction and comes in contact with the front end 12F of the eraser holder 12. However, since  
20 the stop portion 12D of the eraser holder 12 collides with and stops at the rear edge of the opening window 1B of the cylindrical casing 1, the eraser holder 12 supports the weight 11 without dropping it rearwardly of the cylindrical casing 1. At this time, the eraser  
25 holder 12 slides rearward until the stop portion 12D thereof comes in contact with the rear edge of the opening window 1B. In this manner, the eraser holder 12 performs a cushioning action.

When the user uses rubber eraser 13, he will hold a  
30 rear large diameter portion 12G of the eraser holder 12 with his hand and then perform an erasing action. Thus, since the erasing operation with the rubber eraser 13 does not cause the chuck 7 to move forward, the pencil lead 3 is not fed. To supply pencil leads 3 in the lead  
35 reservoir 10, the user will remove the rubber eraser 13 and then supply the pencil leads 3 into the lead reservoir 10 through a through-hole 12H of the eraser

holder 12. Alternatively, to do that, the user will push the stop portion 12D in the radially inner direction of the cylindrical casing 1, remove the eraser holder 12 rearward from the cylindrical casing 1, and supply the pencil leads 3 from the rear end of the lead reservoir 10. When the user reinserts the eraser holder 12 into the cylindrical casing 1, the oblique surface 12J guides the eraser holder for smooth reinsertion. To feed a new pencil lead 3 following a consumed pencil lead 3, when the rubber eraser 13 forming the knock member is depressed, the stop portion 12D of the rubber holder 12 is moved in the opening window 1B of the cylindrical casing 1. Thus, the inner collar 12E of the eraser holder 12 comes in contact with the rear end of the lead reservoir 10. Consequently, the lead reservoir 10 and the chuck 7 also move forward along with the eraser holder 12. Thus, the chuck 7 is opened. As a result, as in the conventional mechanical pencil with a shaking type lead-feeding mechanism, the new pencil lead 3 follows by the old one.

Next, with reference to Figs. 4, 5, 6, 7, and 8, another embodiment where an eraser holder constituting a knock member is supported by a cylindrical casing will be described. In this embodiment, an opening window 101B formed at the rear of the cylindrical casing 101 has a large width portion 101C and a small width portion 101D disposed at the rear thereof as shown in Fig. 5. The large width portion 101C and the small width portion 101D are connected with an oblique portion 101E. In addition, on a resilient piece 112C of the eraser holder 112, a protrusion 112I and a thin stop portion 112D are formed. At the front end of the protrusion 112I, an oblique surface is formed, the protrusion 112I having a uniform height in the longitudinal direction thereof. The thin stop portion 112D is extended rearward from the protrusion 112I. However, the protrusion 112I and the stop portion 112D are not extruded out of the outer

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surface of the cylindrical casing 101. In addition, the protrusion 112I has a side oblique surface 112K. The protrusion 112I of the eraser holder 112 is inserted into the large width portion 101C of the opening window 101B of the cylindrical casing 101. The stop portion 112D of the eraser holder 112 is inserted into the small width portion 101D of the opening window 101B. The eraser holder 112 is slidable longitudinally by a predetermined distance in the cylindrical casing 101. In addition, since the stop portion 112D of the eraser holder 112 collides with and stops at the rear edge of the opening window 101B of the cylindrical casing 101, the eraser holder 112 does not drop rearwardly of the cylindrical casing 101. Thus, in the normal condition, even if a force is applied to the eraser holder 112 in the rotational direction thereof, the eraser holder 112 does not rotate since the stop portion 112D comes in contact with the small width portion 101D. However, when the eraser holder 112 is moved forward while pushing the lead reservoir 10 against the force of a chuck spring, the stop portion 112D is placed into the large width portion 101C of the opening window 101B as shown in Fig. 8. In this state, when a force is applied to the eraser holder 112 in the rotational direction thereof, the side oblique surface 112K of the protrusion 112I comes in contact with the side edge of the large width portion 101C. Then, the resilient piece 112C of the eraser holder 112 is resiliently deformed inward and thereby the stop portion 112D is moved inwardly from the inner surface of the cylindrical casing 101. When the eraser holder 112 is rotated thereafter, the protrusion 112I and the stop portion 112D are disengaged from the opening window 101B and thereby they are placed in the cylindrical casing 101. In this state, when the eraser holder 112 is pulled rearward, it can be easily removed from the cylindrical casing 101.

Figs. 9 and 10 show another embodiment of the present invention. In this embodiment, on a resilient piece 212C of an eraser holder 212 constituting a knock member, a stop portion 212D having a uniform height in the longitudinal direction thereof is formed. The stop portion 212D is inserted into the opening window 101B of the cylindrical casing 101 in such a way that the stop portion 212D is slidable longitudinally of the cylindrical casing 101. The stop portion 212D does not reach the outer surface of the cylindrical casing 101. On the stop portion 212D, side oblique surfaces 212K are formed. With this construction, when the eraser holder 212 is rotated, since the side oblique surface 212K causes the resilient piece 212C to be resiliently deformed inwardly in the radial direction of the cylindrical casing 101, the eraser holder 212 can be easily removed rearward from within the cylindrical casing 101.

In the above-mentioned embodiments shown in Figs. 4 and 9, since the eraser holder can be easily removed from the cylindrical casing, pencil leads can be easily supplied to the lead reservoir.

As another construction where an eraser holder constituting a knock member is mounted to a cylindrical casing, there is an embodiment as shown in Fig. 11.

A knock member can be constructed in such a way that a cap 14 as a knob is mounted on an eraser holder 412 so as to cover the rubber eraser 13.

It should be noted that the lead feeding mechanism of the mechanical pencil of the present invention is not limited to the constructions of the above-mentioned embodiments. The present invention can be applied to a construction where a washer portion 301G is integrally formed at the front of a cylindrical casing 301 as shown in Fig. 12.

In the above-mentioned embodiments, the inner surface at the front end of the cylindrical casing causes the outer collar at the front end of the connector to be centred, thereby preventing deflection of the lead reservoir and the chuck. However, as shown in Figs. 13 and 14, by providing longitudinal ribs 401H formed on the inner surface at the front of a cylindrical casing 401, the outer collar 8A at the front end of the connector can be centred.

In the above-mentioned embodiments, the head portion of the knock member which is supported at the rear end of the cylindrical casing to be slidable by a predetermined distance is constructed of the eraser holder and the rubber eraser held thereby. However, the head portion of

the knock member can be constructed of a solid member which does not contain the rubber eraser as shown in Figs. ~~12~~<sup>15</sup> to ~~14~~<sup>16</sup>.

In an embodiment shown in Figs. ~~14~~<sup>15</sup> and ~~14~~<sup>16</sup>, the entire knock member is represented with reference numeral 512. The head portion of the knock member is solid. For example, the knock member 512 may be integrally formed of a synthetic resin. The construction of the embodiment shown in Fig. ~~14~~<sup>15</sup> is the same as that shown in Fig. 1 except for the construction of the head portion of the knock member 512. At the front of the knock member 512, the cylindrical small diameter front portion 12B is integrally formed. The stop portion 12D having the oblique surface 12J is protruded out of the outer surface of the thin front portion 12B. In addition, the resilient piece 12C is formed. Other portions which are same as Fig. 1 are represented with the same reference numerals. The description of the same portions will be omitted for simplicity.

The mechanical pencil with the shaking type lead-feeding mechanism of the above-mentioned construction is assembled in the following manner. First, the lead reservoir 10 and the connector 8 which are the writing mechanism are inserted through the front hole 1D into the cylindrical casing 1. The mouth ring 2 is screwed to the front of the cylindrical casing 1. The washer 5 is securely held between the inner shoulder 2A of the mouth ring 2 and the front end 1A of the cylindrical casing 1. Thereafter, the weight 11 is inserted into the cylindrical casing 1 through the rear end thereof in such a way that the weight 11 is slidable along the outer surface of the lead reservoir 10. Next, the stop portion 12D of the knock member 512 is inserted into the opening window 1B of the cylindrical casing 1 in such a way that the stop portion 12D is slidable in the cylindrical casing 1. Thereafter, the knock member 512 is mounted at the rear of the cylindrical casing 1.

In an embodiment shown in Fig. 17, a knock member 612 has a solid head portion. The construction of the embodiment shown in Fig. 17 is the same as that shown in Fig. 4 except for the construction of the knock member 612. The portions which are same as Fig. 4 are represented by the same reference numerals. The description of the same portions will be omitted for simplicity.

In an embodiment shown in Fig. 18 also, the knock member 712 has a solid head portion. The other portions of this embodiment are the same as those shown in Fig. 9 and will not be described but designated by the same reference numerals.

In an embodiment shown in Figs 19 to 21, like the embodiment shown in Fig. 1, a knock member is constructed of an eraser holder 812 and a rubber eraser 13. However, in the embodiment shown in these figures, at the large diameter portion 12G of the eraser holder 812, an opening window 812K is formed so as to extend from a bottom wall 812E to a peripheral wall thereof. The rubber eraser 13 is inserted into the large diameter portion 12G in such a way that the rubber eraser 13 comes in contact with the bottom wall 812E of the eraser holder 812. In this embodiment, when the eraser 13 wears to such a degree that it does not protrude from the eraser holder 812, the eraser can be removed by pushing the remaining portion thereof from the opening window 812K of the eraser holder 812 with a finger of the user. Alternatively, it can be removed by sticking a needle or the like into the rubber eraser 13 through the opening window 812K and moving the rubber eraser 13 rearward.

The construction of the eraser holder 812 can be used for the embodiments shown in Fig. 1, 4 and 9. An example where the eraser holder 812 is used in the embodiment of Fig. 1 is shown in Fig. 22.

In an example shown in Fig. 23, a cap 114 which covers the rubber eraser 13 is detachably mounted on the

knock member shown in Fig. 19 or 21. This cap 114 functions as a knob as in the example shown in Fig. 11.

When a mechanical pencil is subjected to shocks during shipment, the weight and the associated members vibrate, thereby unnecessarily feeding the pencil lead. As a result, the pencil lead is sometimes broken. To solve this problem, constructions shown in Figs. 24 to 26 can be used.

In a construction shown in Fig. 24 a cap is detachably mounted on the mouth ring 2 of the mechanical pencil. The bottom surface 214A of the cap 214 and the tip of the lead guide hold of the mouth ring 2 are spaced apart by approximately 2mm. When the user writes with the mechanical pencil, he will remove the cap 214 from the mouth ring 2 and then fit it on the rear cylindrical portion 12G of the eraser holder 12 as indicated in Fig. 25.

Thus, when the mechanical pencil is delivered from a plant to a dealer, even if the mechanical pencil is subjected to shocks, the mechanical pencil can prevent the pencil lead from being unnecessarily fed since the pencil lead keeps in contact with the bottom surface 214A of the cap 214. In addition, when the user carries the mechanical pencil, the feeding of pencil lead can also be prevented.

Instead of providing the cap 214, a disposable cap 314 may be mounted on a lead guide pipe 15 formed at the tip of the mouth ring 2 as shown in Fig. 26. In this construction, the user of this mechanical pencil will remove the cap 314 before using the mechanical pencil.

As described above, according to the present invention, when the casing of the mechanical pencils is shaken, the weight causes the chuck to feed the pencil lead. Thereafter, the weight moves rearward due to a reaction and collides with the front end of the cylindrical portion of the knock member. At this time, the knock member moves rearward for a predetermined

distance in the longitudinal direction of the cylindrical casing so as to reduce the shock due to the collision. In addition, since the lead reservoir is not influenced by the rearward movement of the weight, the chuck does  
5 not move rearward. As a result, the pencil lead is not damaged or broken as a result of tightening by the chuck. Moreover, since the knock member is not urged rearward by a strong resilient force of a spring, a large force is not required for pushing the knock member.

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#### Industrial Applicability

The present invention can be applied to any mechanical pencil with a shaking type lead-feeding mechanism.

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## CLAIMS

1. A mechanical pencil with a shaking type lead-feeding mechanism, comprising:

a cylindrical casing having a front end portion for writing and a rear end portion;

a lead holding chuck disposed in said cylindrical casing adjacent to said front end portion;

a chuck spring provided in said casing to urge the lead holding chuck rearward with a relatively small force;

a lead reservoir connected to a rear portion of said lead holding chuck for storing a pencil lead to be fed to said chuck;

a weight reciprocally movable in a longitudinal direction of said cylindrical casing along said lead reservoir, for applying an inertial force to said chuck when said casing is shaken, said inertial force causing said chuck to feed said pencil lead; and

a knock member disposed at said rear end portion of said casing so as to be abutted by said lead reservoir;

wherein said mechanical pencil comprises;

a cylindrical portion protruding forward from said knock member and fitted in said rear end portion of said casing, said cylindrical portion being slidable in the longitudinal direction of said casing;

an opening window formed adjacent to said rear end



\* C L N S \*

portion of the casing so as to extend in the longitudinal direction of the casing;

stop means protruding radially outward from said cylindrical portion and engaging in said opening window in such a way that the stop means is slidable in the longitudinal direction of the casing and said knock member is thereby slidable freely without restraint in the longitudinal direction of the casing, said cylindrical portion having a resilient piece on which said stop means is formed;

the front end of said cylindrical portion being opposed to the rear end of said weight in the longitudinal direction of said casing, so as to be capable of contacting the rear end of said weight; and

said knock member comprising a cylindrical large diameter portion and a small diameter front portion, said small diameter front portion protruding forward from said large diameter portion so as to form said cylindrical portion.

2. A mechanical pencil with shaking type lead-feeding mechanism as claimed in Claim 1:

wherein said large diameter portion is hollow and has a rubber eraser fitted therein so as to be exposed rearward.

3. A mechanical pencil with a shaking type lead-feeding mechanism as claimed in Claim 1:

wherein said large diameter portion is solid.



4. A mechanical pencil with a shaking type lead-feeding mechanism as claimed in any one of Claims 1 to 3:

wherein said resilient piece is formed of a U-shaped cutout in said cylindrical portion.

5. A mechanical pencil with a shaking type lead-feeding mechanism as claimed in any one of Claims 1 to 4:

wherein said stop means has an oblique surface at the front thereof.

6. A mechanical pencil with a shaking type lead-feeding mechanism as claimed in any one of Claims 1 to 4:

wherein said stop means has a pair of side oblique surfaces on both sides thereof in the peripheral direction of said cylindrical portion.

7. A mechanical pencil with a shaking type lead-feeding mechanism as set forth in Claim 1:

wherein said opening window comprises a large width portion and a small width portion, said large width portion being disposed at the front in the longitudinal direction thereof and said small width portion at the rear in the longitudinal direction thereof; and

wherein said stop means engaging said large width portion and having a thin stop portion at the rear of the stop means, said thin stop means being normally engaged with said small width portion in such a way that the thin stop



portion is movable into said large width portion.

8. A mechanical pencil with a shaking type lead-feeding mechanism as set forth in Claim 1:

wherein said cylindrical portion of said knock member is inserted into said cylindrical casing in such a way that said cylindrical portion surrounds the outer periphery of said lead reservoir; and

wherein said knock member has a contacting surface for contacting the rear end of said lead reservoir when knocked forward.

9. A mechanical pencil with a shaking type lead-feeding mechanism as set forth in Claim 1:

wherein said knock member has a cap-shaped knob detachably mounted to the rear end thereof.

10. A mechanical pencil with shaking type lead-feeding mechanism as set forth in Claim 2:

further comprising an opening window formed from the bottom of said large diameter portion of said knock member to the peripheral wall thereof, said rubber eraser being exposed through said opening window.

11. A mechanical pencil with a shaking type lead-feeding mechanism as set forth in Claim 2:

further comprising a cap selectively mountable on the



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rear of said knock member or the front end of said cylindrical casing.



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