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PENCIL SHARPENER FOR COSMETIC PENCILS

Filed Sept. 28, 1960

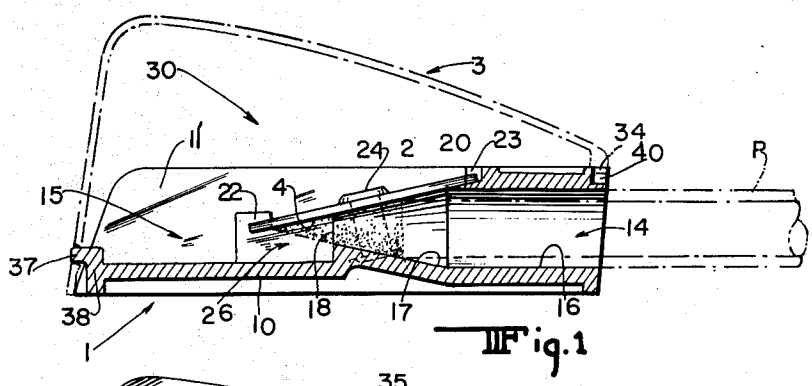


Fig. 1

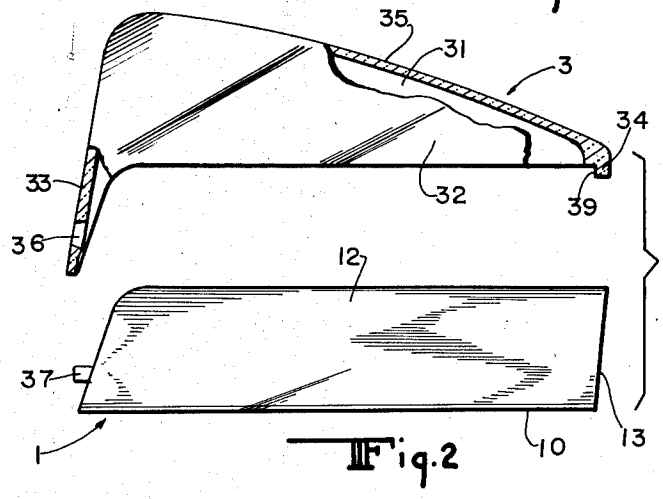


Fig. 2

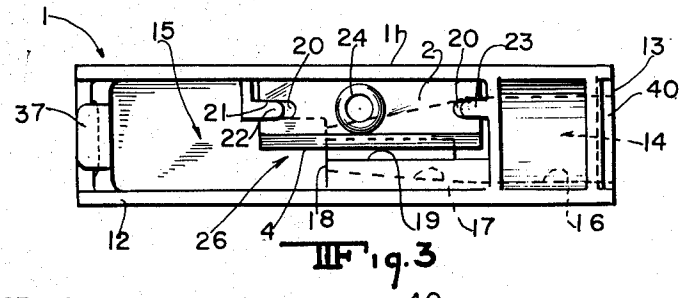


Fig. 3

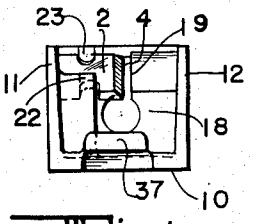


Fig. 4

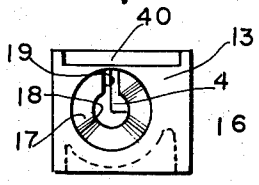


Fig. 5

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PENCIL SHARPENER FOR COSMETIC PENCILS

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This invention relates to new and useful improvements in pencil sharpeners and more particularly to pencil sharpeners which are especially suitable for the sharpening of pencils having incased cores composed of relatively soft leads or coloring materials, such, for example, as the coloring or cosmetic pencils commonly referred to as "eyebrow" and "eyeshadow" pencils.

One of the objects of the invention is to provide a simple and inexpensive pocket-type pencil sharpener especially suitable for such use.

Another object of the invention is to provide a simple pencil sharpener construction operated by relative rotation of the sharpener and the pencil in the hands of a user, which supports the pencil end being sharpened so that the main part of the pointed core or lead will not readily be twisted or broken off even though it be composed of a relatively soft coloring or cosmetic material, and which, in the event of the tip of the pointed core or lead breaking off or of the sharpening being continued beyond the point required, clears or sheds the broken or cut core material away from the cutting blade and the path of sharpening movement of the pencil so that the sharpener will not be fouled by such material.

A further object of the invention is to provide a diminutive, light-weight pencil sharpener adapted to be carried by hand or in a purse, pocket, or the like, which forms a closed chamber or receptacle within its own structure for accumulation of the shavings and other refuse produced by its use, keeps the refuse from spilling out or littering the hands of the user, and yet enables easy removal of the accumulated refuse at any time.

Other objects, features and advantages of the invention will be apparent from the following description of a preferred embodiment thereof and from the accompanying illustrative drawing in which:

FIG. 1 is an enlarged vertical longitudinal cross-sectional view of a pencil sharpener constructed in accordance with the invention;

FIG. 2 is an enlarged side view thereof with the body member and the receptacle member disconnected and separated;

FIG. 3 is an enlarged top plan view of the body member; and

FIGS. 4 and 5, respectively, are enlarged front and rear end views of the body member.

In the illustrated embodiments of the invention, the pencil sharpener is composed of three principal parts—a body member **1**, a cutting blade **2** carried rigidly by the body member, and a receptacle member **3** which is detachably connected with the body member. The body member and the receptacle member each is formed advantageously as a unitary molded body of a suitable synthetic resin or plastic material; for example, by the injection molding of a thermoplastic resin such as polyethylene.

The body member **1** is an elongated body having its configuration defined principally by a bottom wall **10**, upright walls **11** and **12** along its opposite sides and an upright rear end wall **13**. A rearward portion of the body member **1** forms a passageway **14** to receive and support the end of the pencil P to be pointed or sharpened, and a forward portion of the body member forms a cavity **15** to receive some of the core material and other refuse produced by the action of the blade **2** on the pencil.

The passageway **14** has a cylindrical section **16** extending from a mouth thereof in rear end wall **13** forwardly to a point where it merges into the base of a frusto-conical section **17**. The inner surface of the frusto-conical section is tapered on a cone angle suitable for the pointed end of the pencil, and it extends forwardly to a terminus located below an intermediate part of the blade **2**, where it defines a circular opening **18** considerably smaller in diameter than the core or lead of the pencil to be sharpened. At its top side the opening **18** merges with the forward end of a slot **19** which extends through and along the top side of the frusto-conical section **17** substantially to the base of that section to form a clearance space for cooperation of the pencil end with the cutting edge **4** of the blade **2**.

The cylindrical section **16** is of very nearly the same diameter as the pencil and it has a considerable length closely fitting the barrel of the pencil so that it serves to hold the pencil positively in coaxial relation to the cone defined by section **17**.

The blade **2** as shown is of a type commonly used in conventional pocket pencil sharpeners. It is mounted on an upwardly facing sloped supporting surface **20** of the body member **1** at one side of the frusto-conical section **17**, with its cutting edge **4** lying in and along the slot **19**, parallel to but slightly inside the outline of the cone defined by section **17**, so as to make a peripheral cut of the desired taper and thickness in the pencil end as a pencil pushed into the passageway **14** and the sharpener are rotated one relative to the other about the axis of the cone. Beyond the forward end of the slotted section **17** at opening **18** the blade extends forwardly and downwardly through a point of intersection of its cutting edge with the axis of said cone, so that the cutting action on the tip of the lead will be assured of continuing for as long as the sharpening movements are continued.

It will be noted that in the course of the cutting action of the blade edge **4** on the end of the pencil, the end portion of the pencil core or lead, as well as that of the case of the pencil, is supported over most of its circumference by the surface of the frusto-conical section **17** until after a point of considerable length has been formed on the core or lead. Thus there is little or no tendency for that main portion of the point to be broken or twisted off by the torque of its movements against the blade.

The core or lead continues to be supported until it has been pointed down to a tip smaller than the opening **18**, whereupon the tip works against a forward portion of the blade edge **4** beyond the opening **18**. This tip, however, is so small in diameter that it is not likely to be twisted off by the torque of the blade; and in the event that it is then twisted or broken off, the broken tip is cleared or shed away from the blade and from the path of the axial sharpening movement of the pencil by falling into a clearance cavity **26** formed in the body member beneath the blade edge **4** and opening **18**. It will be further noted that the clearance between the blade edge and the bottom of cavity **26**, as well as the clearance between that edge and the side of the cavity along wall **12**, is at all points along the blade greater than the diameter of the part of the pencil core or lead at the end opening **18** of the frusto-conical section **17**. Thus any breaking of the tip of the pointed core or lead causes no obstruction to the continuation of the sharpening action, for the broken tip will be displaced intact away from the zone of sharpening without in any way becoming blocked at the blade so as to resist continued forward movement of a sharpened part of the lead following it.

The clearance cavity **26** is a backward extension of the cavity **15** formed in the forward portion of the body

member 1. Cavity 15 in turn is part of a closed chamber 30 formed over the entire body member by the receptacle member 3 and the upwardly facing inside surfaces of the body member.

Some of the shavings or other refuse formed from the pencil end falls or passes into the cavity 15. In large part, however, the shavings pass upwardly over the blade 2 into the portion of chamber 30 defined by member 3.

The chamber 30 is normally kept closed by the separable interconnection between the body member 1 and the receptacle member 3, so that the refuse accumulates inside the sharpener and will not be lost or spilled onto the user's hands or to other environs of the pencil sharpener. To that end, member 3 is provided with especially formed side walls 31 and 32, front wall 33 and rear flange 34, all of which fit and coact with parts of the body member and extend from a top wall 35 so as to constitute a shavings receptacle. The side walls 31 and 32 have lower edges complementary to and fitting closely against the upper edges of side walls 11 and 12, respectively, of the body member. The front wall 33 is formed with a slot 36 therein near its lower end, which slot normally receives a lip 37 formed on front flange 38 of body member wall 10 and thus normally holds the forward portion of the receptacle member in closed relation to the forward portion of the body member. The rear flange 34 has an inwardly sloped edge or lip 39 which, when the slot 36 and lip 37 are interengaged, is readily snapped over and frictionally engaged with a flange surface 40 formed in and across the upper edge of the rear end wall 13 of the body member, above the mouth of passageway 14.

Thus members 1 and 3 are readily interconnected so as to form a closed chamber 30 between them, and yet they are readily disconnected and separated from each other through simple finger movements, by simply pulling the rear end of member 3 away from member 1, so as to disengage lip 39 from surface 40, and then displacing the two members so as to free slot 36 from lip 37.

The receptacle member 3 normally is made of a transparent material so that the amount of shavings accumulated in chamber 30 is always directly visible to the user of the sharpener.

The shavings can be removed cleanly and easily after each use of the sharpener, or at any other time as desired, by simply inverting the sharpener, shaking or tapping it to collect the accumulated shavings in the receptacle formed by member 3, and then detaching member 3 from the body member as above described and emptying the contents into a waste collector. The emptied member 3 is then reconnected in place on the body member by simple finger movements, and the sharpener is ready for another use.

While various details of a preferred embodiment of the invention have been described hereinabove and illustrated in the drawings, it will be understood that the invention may be embodied in various other forms of pencil sharpeners within the scope of the appended claims without departing from the substance of the disclosure.

We claim:

1. A pencil sharpener adapted for sharpening a cosmetic pencil having a relatively soft axial core occupying most of the diameter of the pencil, comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of said pencil, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than said core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cutting edge lying in and along said slot, parallel to and slightly inside the surface of the cone defined by said frusto-conical section, to cut said end portion to the taper desired for the tip of the pencil, a forward portion of said cutting edge extending forwardly and downwardly ahead of said end opening through an intersection of said edge with the axis of said frusto-conical section, and a clearance cavity formed in the forward portion of said body member ahead of said end opening and said blade, said cavity being open beneath and to a side and forwardly of said forward portion of said cutting edge and below said end opening and providing clearances between said edge and bottom and side walls of said cavity which at all points along said forward portion of said cutting edge are greater than the diameter of said end opening, so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity.

2. A pencil sharpener adapted for sharpening a cosmetic pencil having a relatively soft axial core occupying most of the diameter of the pencil, comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of said pencil, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than said core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cutting edge lying in and along said slot, parallel to and slightly inside the surface of the cone defined by said frusto-conical section, to cut said end portion to the taper desired for the tip of the pencil, a forward portion of said cutting edge extending forwardly and downwardly ahead of said end opening through an intersection of said edge with the axis of said frusto-conical section, a cavity formed in the forward portion of said body member, said cavity being upwardly open and having a backward extension located ahead of said end opening and which is open beneath and to a side and forwardly of said forward portion of said cutting edge and below said end opening and which provides clearances between said edge and bottom and side walls of said cavity which at all points along said forward portion of said cutting edge are greater than the diameter of said end opening, so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity, and a receptacle member detachably connected with and overlying said body member and normally forming over and in communication with said cavity and said blade a closed chamber extending away from said body member to receive and accumulate the refuse formed from the pencil.

3. A pencil sharpener adapted for sharpening a cosmetic pencil having a relatively soft axial core occupying most of the diameter of the pencil, comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of said pencil, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said cylindrical section closely fitting the pencil over a length exceeding the length of said frusto-conical section and sufficient to hold the pencil positively in coaxial relation to said frusto-conical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than said core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cut-

ting edge lying in and along said slot, parallel to and slightly inside the surface of the cone defined by said frusto-conical section, to cut said end portion to the taper desired for the tip of the pencil, a forward portion of said cutting edge extending forwardly and downwardly ahead of said end opening through an intersection of said edge with the axis of said frusto-conical section, a clearance cavity formed in the forward portion of said body member ahead of said end opening and said blade, said cavity being open beneath and to a side and forwardly of said forward portion of said cutting edge and below said end opening and providing clearances between said edge and bottom and side walls of said cavity which at all points along said forward portion of said cutting edge are greater than the diameter of said end opening, so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity.

4. A pencil sharpener comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of the pencil to be sharpened, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than the core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cutting edge lying in and along said slot, parallel to and slightly inside the surface of the cone defined by said frusto-conical section, to cut said end portion to the taper desired for the tip of the pencil, a forward portion of said cutting edge extending forwardly and downwardly ahead of said end opening through an intersection of said edge with the axis of said frusto-conical section, a cavity formed in the forward portion of said body member, said cavity being upwardly open and having a backward extension located ahead of said end opening and which is open beneath and to a side and forwardly of said forward portion of said cutting edge and below said end opening, and which provides clearances between said edge and bottom and side walls of said cavity which at all points along said forward portion are greater than the diameter of the part of the pencil core formed at said end opening, so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity, and a receptacle member detachably connected with and overlying said body member and normally forming over and in communication with said cavity and said blade a closed chamber extending away from said body member to receive and accumulate the refuse formed from the pencil, said receptacle member being shaped to collect said refuse therein upon inversion and tapping of the pencil sharpener and being formed with means cooperating with means formed on said body member for detachably interconnecting said members so that the receptacle member may be separated from the body member and manipulated to discard the refuse by simple movements thereof by fingers of a user's hands, said body member having a bottom wall, spaced upright side walls, a front flange at the forward end of said cavity, and a rear end wall forming the mouth of said passageway, said receptacle member having a top wall from the margins of which extend spaced side walls, a front wall and a rear flange interfitting, respectively, with respective upper edge portions of the side walls, front flange and rear end wall of said body member.

5. A pencil sharpener comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of the pencil to be sharpened, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than the core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cutting edge lying in and along said slot, parallel to and slightly inside the surface of the cone defined by said frusto-conical section, to cut side end portion to the taper desired for the tip of the pencil, a forward portion of said cutting edge extending forwardly and downwardly ahead of said end opening through an intersection of said edge with the axis of said frusto-conical section, a cavity formed in the forward portion of said body member, said cavity being upwardly open and having a backward extension located ahead of said end opening and which is open beneath and to a side and forwardly of said forward portion of said cutting edge and below said end opening, and which provides clearances between said edge and bottom and side walls of said cavity which at all points along said forward portion are greater than the diameter of the part of the pencil core formed at said end opening, so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity, and a receptacle member detachably connected with and overlying said body member and normally forming over and in communication with said cavity and said blade a closed chamber extending away from said body member to receive and accumulate the refuse formed from the pencil, said receptacle member being shaped to collect said refuse therein upon inversion and tapping of the pencil sharpener and being formed with means cooperating with means formed on said body member for detachably interconnecting said members so that the receptacle member may be separated from the body member and manipulated to discard the refuse by simple movements thereof by fingers of a user's hands, said body member having a bottom wall, spaced upright side walls, a front flange at the forward end of said cavity, and a rear end wall forming the mouth of said passageway, said receptacle member having a top wall from the margins of which extend spaced side walls, a front wall and a rear flange interfitting, respectively, with respective upper edge portions of the side walls, front flange and rear end wall of said body member, said interconnecting means comprising interengaging lip and slot means on said front flange and said front wall and coacting friction surfaces on said rear flange and said rear end wall, said surfaces being disengageable and reengageable with a snap action by finger-forced relative movements of the rear ends of said members.

6. A pencil sharpener comprising an elongated body member having a backward portion forming a passageway to receive and support for relative rotation therein an end portion of the pencil to be sharpened, said passageway comprising a cylindrical section of nearly the same diameter as the pencil and a frusto-conical section merging at its base and coaxial with said cylindrical section, said frusto-conical section terminating in an end opening substantially smaller in diameter than the core of the pencil and having a slot therein extending along its top side from said end opening substantially to its base, a blade mounted on said body member at one side of said frusto-conical section, said blade having a cutting edge lying in and along said slot to cut said end portion to the taper desired for the tip of the pencil, a cavity formed in the forward portion of said body member ahead of said end opening and said blade, said cavity being upwardly open and having a backward extension located below said end opening so that in the event of breakage of said tip the broken core tip will be shed freely away from the path of sharpening movement of the pencil core into said cavity, and a receptacle member detachably connected with and overlying said body member and normally forming over

and in communication with said cavity and said blade a closed chamber extending away from said body member to receive and accumulate the refuse formed from the pencil, said receptacle member being shaped to collect said refuse therein upon inversion and tapping of the pencil sharpener and being formed with means cooperating with means formed on said body member for detachably interconnecting said members so that the receptacle member may be separated from the body member and manipulated to discard the refuse by simple movements thereof by fingers of a user's hands, said body member having a bottom wall, spaced upright side walls, a front flange at the forward end of said cavity, and a rear end wall forming the mouth of said passageway, said receptacle member having a top wall from the margins of which extend spaced side walls, a front wall and a rear flange interfitting, respectively, with respective upper edge portions of the side

walls, front flange and rear end wall of said body member, said interconnecting means comprising interengaging lip and slot means on said front flange and said front wall and coacting friction surfaces on said rear flange and said rear end wall, said surfaces being disengageable and reengageable with a snap action by finger-forced relative movements of the rear ends of said members.

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