Dec. 21, 1965 H. RUSKIN ETAL 3,224,418

PENCIL SHARPENING DEVICE

Filed Aug. 11, 1961 4 Sheets-Sheet 1

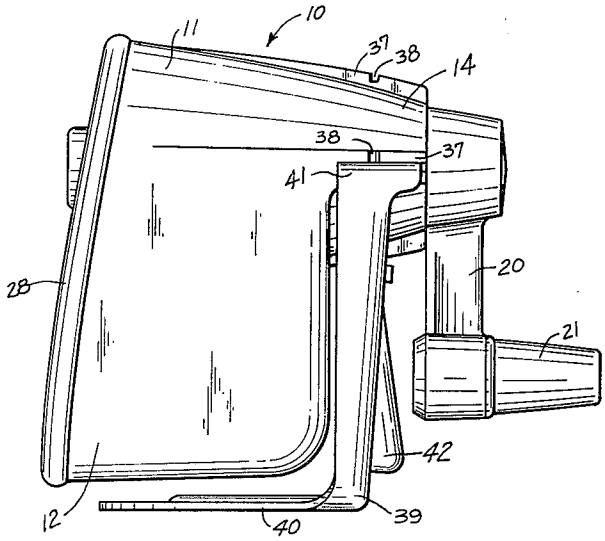


FIG. 1

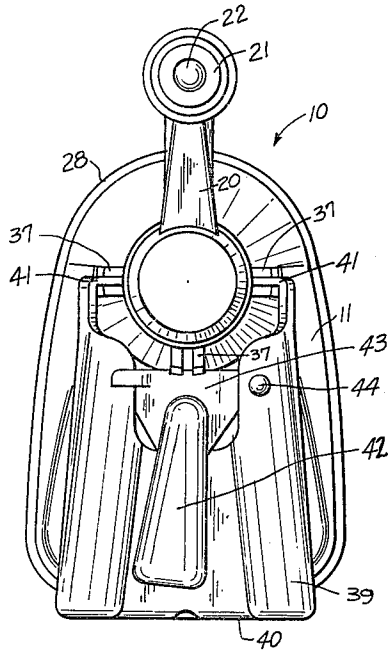


FIG. 2

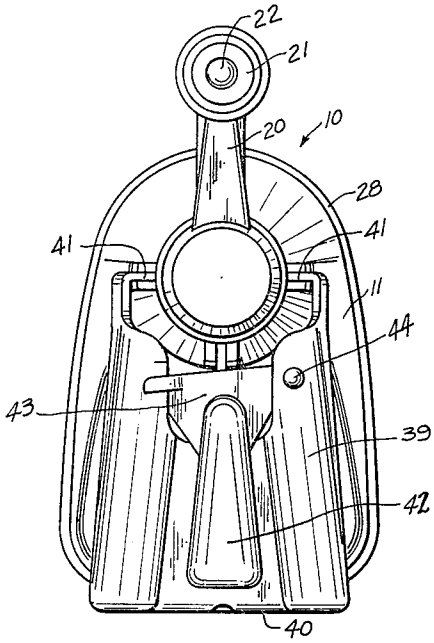


FIG. 3

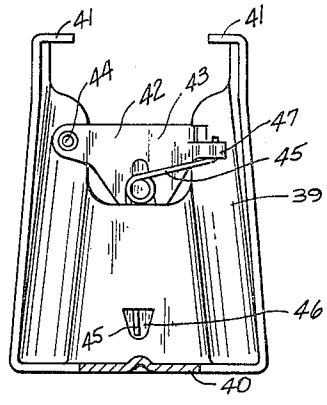


FIG. 4

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PENCIL SHARPENING DEVICE

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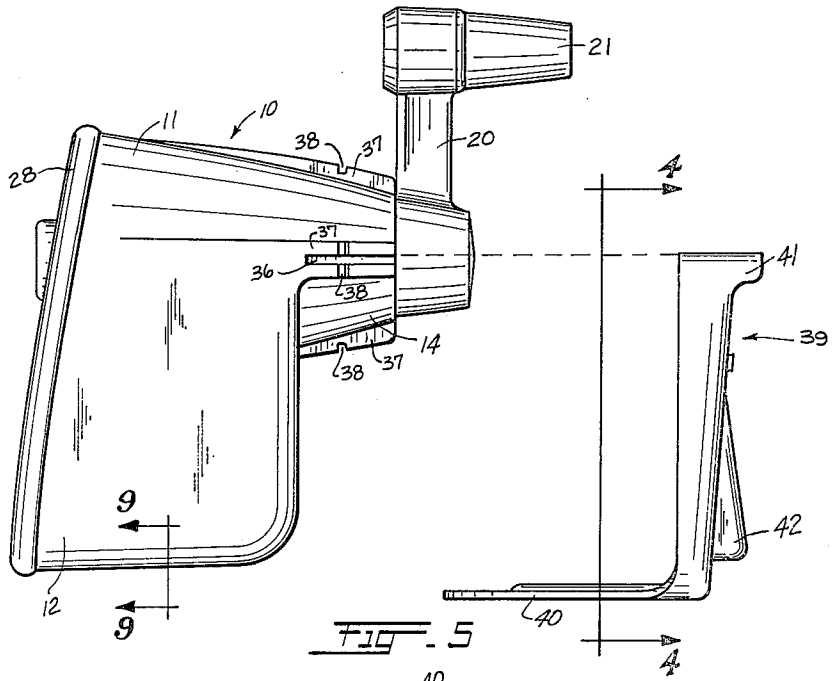


Fig. 5

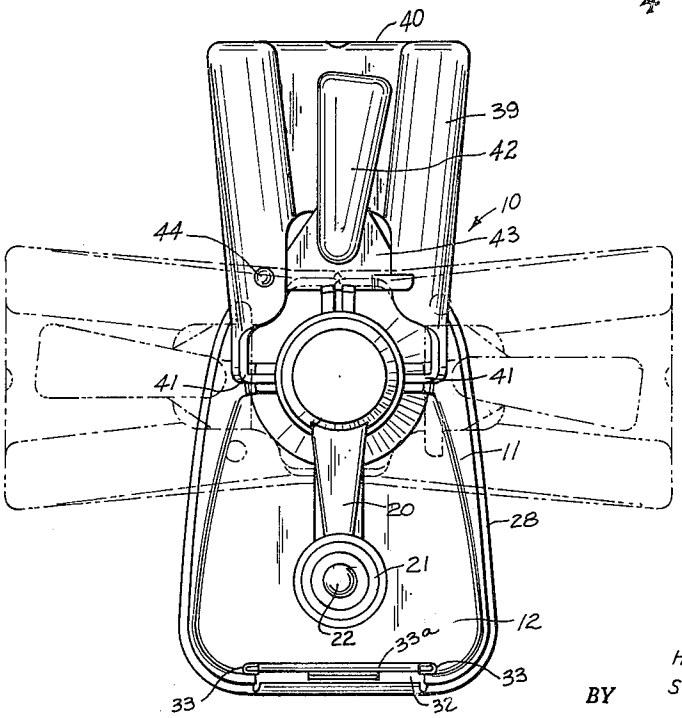


Fig. 6

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PENCIL SHARPENING DEVICE

Filed Aug. 11, 1961 4 Sheets-Sheet 3

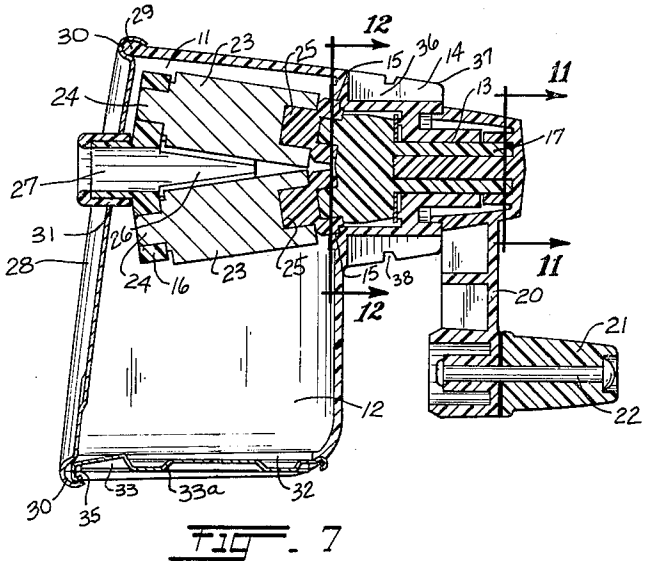


Fig. 7

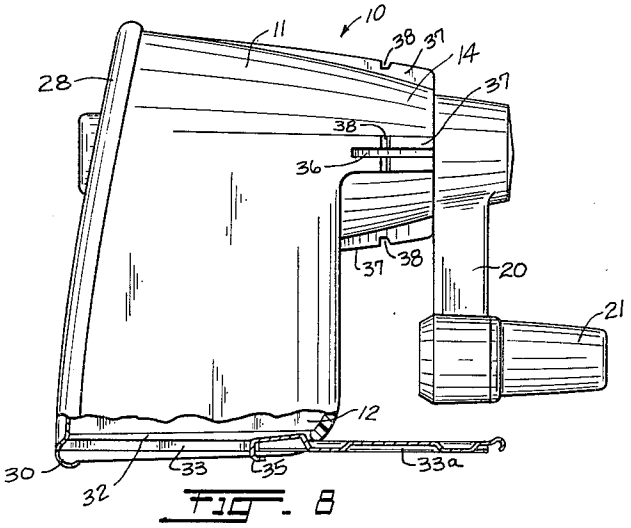


Fig. 8

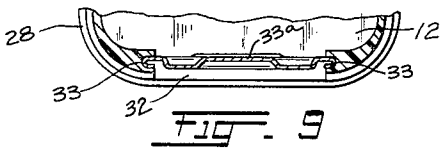


Fig. 9

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PENCIL SHARPENING DEVICE

Filed Aug. 11, 1961 4 Sheets-Sheet 4

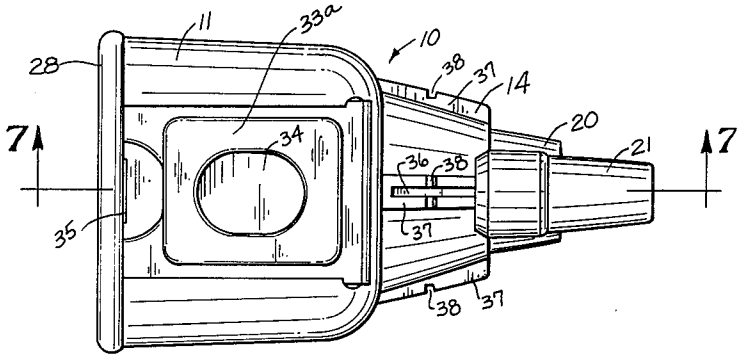


Fig. 10

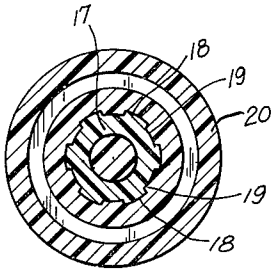


Fig. 11

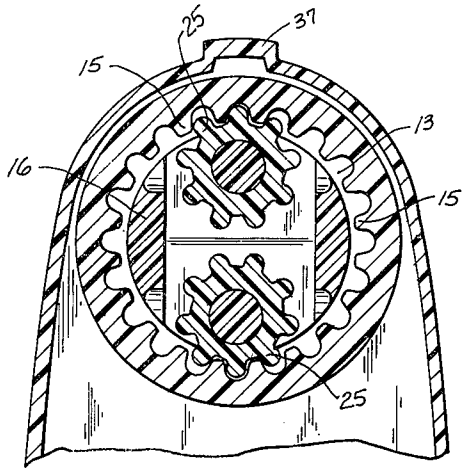


Fig. 12

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United States Patent Office 3,224,418 Patented Dec. 21, 1965

3,224,418

PENCIL SHARPENING DEVICE

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Filed Aug. 11, 1961, Ser. No. 130,864
10 Claims. (Cl. 120—96)

This invention relates to a pencil sharpening device which, by means of novel structure, provides features which have not heretofore been present in such a device.

By means of the instant invention a pencil sharpener has been produced which permits instant emptying of the chip receptacle thereof without having to remove the chip receptacle from the remainder of the unit. Furthermore, by reason of this feature, the chip receptacle can be made integral with the body portion of the device for ease in construction so that the body portion, if desired, can be made of plastic material.

The construction of the instant invention also permits the use of novel surface support means in connection with the device so that the device can be placed in positions which have not been feasible heretofore.

In addition the construction of the instant invention is extremely durable and long lasting while, at the same time, the cost of construction is less than of the conventional devices.

In order to permit instant emptying of the chip receptacle portion of the instant invention dumping means are operatively connected to the chip receptacle. In the specific modification of the instant invention shown herein the chip receptacle is provided with an opening therewithin (preferably at the bottom thereof) and an openable cover (preferably slidably movable) is provided to normally overlie the opening.

In order to permit positioning of the device into positions which have not been heretofore feasible the body portion of the instant invention is provided with a guide portion (preferably a plurality of such guide members). A stand member (which is fixedly secured to a support point) is provided with a support portion thereupon which is selectively disposable within a guide member. Latching means may also be provided, if desired, to prevent unintentional removal of the support portion from the guide member.

In addition to the above features, in order to prevent unintentional removal of the cover from the opening within the chip receptacle locking means are provided, if desired, upon the cover and the adjacent portion of the chip receptacle.

The invention also includes some novel constructional features. For example, where a front face plate is provided upon the chip receptacle portion and the opening therewithin is at the bottom thereof, the side portions of the front of the chip receptacle can be thickened and the face plate can be made with a perimetral recess therewithin. In assembly the perimetral recess, where it contacts the thickened portion, will hold the face plate to the chip receptacle while the open recess on the bottom portion of the face plate will serve as a part of the locking means for the cover.

There are a number of other constructional details which improve the performance of this invention. These will be further described in the specification and covered by the appended claims.

The invention will now be further described by setting forth the best mode of carrying out the same known to the applicant. However, in this connection, it must be pointed out that various changes and modifications of this invention could obviously be made within the spirit and scope thereof and would occur to those skilled in this art.

In order to specifically describe the aforesaid best mode of this invention a brief description of the drawings which are made a part of this specification will now be set forth.

FIG. 1 is a side view of a form of the pencil sharpening device made in accordance with this invention.

FIG. 2 is a rear view of the form of pencil sharpening device shown in FIG. 1 with the latching means upon the stand member in engaged position.

FIG. 3 is a view similar to that of FIG. 2 but showing the means utilized to disengage the latching means when it is desirable to remove the stand member from the remainder of the device.

FIG. 4 is a detail sectional view of the stand portion of this invention showing the spring means which control the latching means taken along lines 4—4 of FIG. 5.

FIG. 5 is an exploded side view of the stand member as the remainder of the device is removed therefrom showing the details of construction.

FIG. 6 is a rear view of the pencil sharpening device of this invention showing, by phantom lines, the various positions that the stand member may take and the various positions that the device may assume.

FIG. 7 is a sectional view of one form of this invention taken along lines 7—7 of FIG. 10.

FIG. 8 is a side view of the pencil sharpening device of this invention with the stand member removed therefrom and with the cover normally disposed about the opening in the chip receptacle portion in open position.

FIG. 9 is a detail sectional view of the dumping means of this invention taken along lines 9—9 of FIG. 5.

FIG. 10 is a bottom view of a pencil sharpening device made in accordance with this invention.

FIG. 11 is a detail sectional view, on an enlarged scale, taken along lines 11—11 of FIG. 7 showing the spline used to secure the handle to the cutter support member.

FIG. 12 is a sectional view, on an enlarged scale, taken along lines 12—12 of FIG. 7 and showing the annular gear and the rotatable gears which may be utilized to drive the cutters of this invention.

A further description of this inventioin will now be given by reference to the drawings just described herein.

The pencil sharpening device **10** of this invention is formed with a body member **11**. Body member **11** includes a hollow chip receptacle portion **12**. A first opening **13**, which is preferably substantially circular extends from the rear portion **14** of body **11** and communicates with the interior of chip receptacle portion **12**.

In the preferred modification of this invention an annular gear **15** which is fixed and preferably integral with body **11** is disposed within chip receptacle portion **12** and adjacent opening **13**.

A rotatable cutter support member **16** is disposed within chip receptacle portion **12** and includes a stem member **17** projecting rearwardly through opening **13**. A spline **18** meshes with a complementary spline **19** which is located at one end of arm portion **20**. A rotatable handle **21** is secured at an opposite end portion of arm portion **20** by pin **22**.

Cutter support member **16** bears cutters **23** which are preferably rotatably secured to support **16** by bearings **24** and by gears **25**. Gears **25** mesh with annular gear **15**.

Cutter support member **16** also bears a rotatable pencil guide portion **26** which is preferably circular at its forward end. Pencil guide portion **26** is provided with a pencil holding recess **27**.

A face plate **28** may be provided and is secured to the forward portion of chip receptacle portion **12**. The side portions **29** of chip receptacle **12** are thickened and face plate **28** is provided with a perimetral recess **30** which embraces the thickened portion.

Face plate **28** is also provided with a front opening **31**

therewithin which meshes with pencil guide portion 26 and provides bearing means therefor.

Chip receptacle 12 is also provided with an opening 32 in the bottom thereof. A pair of slots 33 which form a slideway are provided on either side of opening 32. A slidable cover 33*a* is supported by slots 33 and bears a release portion 34. A detent 35 is also provided which is adapted to mesh with the bottom part of recess 30 in face plate 28.

A plurality of bifurcated guide members 36 are provided at the rear of body member 11. Guide members 36 are preferably slots which are produced in body member 11 by thickening the adjacent portions 37 of the wall thereof. Where a latching mechanism is used in this invention an additional slot 38 at substantially right angles to guide members 36 is also provided.

A stand 39 is also provided which is formed with a base 40 and a bifurcated upstanding support portion 41. Support portions 41 are normally disposed within guide members 36 when the device is in operation. A latch 42 is preferably provided in order to prevent accidental removal of stand 39 from body portion 11. Latch 42 is formed with an actuating portion 43 which is pivotally secured to stand 39 by pin 44. A spring 45 is secured to stand 39 at 46 and to actuating portion 43 at 47 so that actuating portion 43 is normally in the position shown in FIG. 2.

With the foregoing description the assembly of the invention will now be explained.

The stand 39 and the remainder of the device are separately assembled. The spring 45 is obtained and the stand 39 and actuating portion 43 also obtained. Actuating portion 43 is secured to the remainder of stand 39 by driving pin 44 into place. Spring 45 is then connected to stand 39 and actuating portion 43. These parts are preferably made of metal because of the strength required of them.

The shell of body portion 12 is then obtained. This part, for greatest cost savings, should be made of thermoplastic material such as Butyrate or the like, although it can be made of metal as well. As molded the shell of body portion 12 also preferably contains annular gear 15 and the opening 13. Opening 13, by reason of the molding process, may have a skin of plastic covering the outlet but this can easily be removed by a punch or the like.

Cutter support member 16, cutters 23, bearings 24, arm member 20, pin 22, handle 21 and face plate 28 are then obtained. Face plate 28 is preferably made of metal (although it could also be made of plastic) and is preferably made by stamping or die casting.

Cutters 23, bearings 24 and cutter support member 16 are assembled and stem portion 17 is pushed into opening 13 from the inside. Handle 20 is then meshed with the spline portion 18 of cutter support member 16 so that splines 18 and 19 are connected. A conventional adhesive is then applied so that the parts are permanently affixed to one another.

Pin 22 is then driven through handle 21 and arm 20 and peened in place.

Face plate 28 is then taken and recess 30 caused to overlie thickened portion 29 of chip receptacle 12. Recess 30 is initially made larger than thickened portion 29 so that it easily overlies the portion. The side 48 of recess 30 is then peened over thickened portion 29 so that the face plate 28 is firmly held in place.

Cover 33*a* is then placed into positions within slots 33 and detent portion 35 peened over so that cover 33*a* cannot be removed from its position but will only slied along slots 33. Cover 33*a* is preferably made of a thin resilient metal such as steel.

In operation the stand 39 is secured to a support by screwing base portion 40 to the support or by cementing the same to a support by a suitable adhesive. Body portion 11 may be secured to stand 39 by causing guide portions 36 to mate with the upper part of support portions 41. If latch 42 is provided the forcing of guide portions 36 into full engagement with the mating portions of support portions 41 will cause actuating portion 43 of latch 42 to become displaced as in FIG. 3. However, in displaced position actuating portion 43 of latch 42 is under tension of spring 45.

As support portions 41 are moved along guide portions 36 actuating portion 43 will mesh with slots 38 and the pressure of spring 45 will force actuating portion 43 into slots 38. At this point the device will be locked into position and cannot be accidentally removed therefrom.

Pencils can then be sharpened by the device in conventional manner until the chip receptacle portion of the device becomes full. In order to empty the device of accumulated chips the thumb hole provided in cover 33*a* is pushed by the thumb of the operator so that cover 33*a* is slightly flexed and detent 35 may be removed from the bottom portion of recess 30. If cover 33*a* is now opened while a suitable container is placed beneath the chip receptacle the accumulated chips will be removed from the chip receptacle by gravity without the necessity of removing the body portion from the stand or removing the chip receptacle itself.

After the chip receptacle is emptied the device may be again used in similar manner as heretofore.

If it is desired to remove the body member from the stand all that need be done is to pivot actuating member 43 as shown in FIG. 3 so that member 43 clears slots 38. Body member 11 may now be pulled free of stand 39 as shown in FIG. 5.

In the preferred modification of this invention, since a plurality of guide portions are provided and the upper parts of support portions 41 may be selectively disposed within one or the other of the guide portions a mechanism is provided wherein a number of different positions of body member 11 can be provided at will without removing stand 39 from its position of securement. Also, by this construction, a number of positions normally not available by conventional constructions can be produced.

We claim:

1. A pencil sharpener having a body member made entirely of plastic material including a hollow chip receptacle portion thereupon and provided with a substantially circular first opening extending from the rear thereof and communicating with the interior of said chip receptacle portion, an integral fixed annular gear adjacent said first opening and within said chip receptacle portion, a rotatable cutter support member also within said chip receptacle portion having a stem member projecting rearwardly through said first opening, a spline upon the projecting portion of said stem member, an arm portion having a complementary spline portion thereon to the spline upon said stem member, a rotatable handle portion secured to said arm portion at the opposite end thereof, a pair of spaced diverging fluted cylindrical cutters rotatably disposed upon said cutter support member, a rotatable gear fixed to the rear portion of each of said cutters, said rotatable gears meshing with said annular gear, a face plate secured to the forward portion of said chip receptacle portion and provided with a second opening therewithin, a rotatable pencil guide portion disposed forwardly upon said cutter support member and projecting forwardly through said second opening, a third opening provided within the bottom portion of said chip receptacle portion, a pair of first spaced slots on either side of said third opening, a cover slidable within said first slots overlying said third opening, locking means upon said cover and complementary locking means upon said face plate, a plurality of spaced adjacent pairs of second longitudinal slots at the rear of said body portion, a third tranverse slot disposed across each adjacent pair of second longitudinal slots, a stand member having a base portion and a pair of upstanding spaced support portions each disposable

within one member of an adjacent pair of second slots, a latch bar pivotally and downwardly movable upon said stand and normally disposable within a third transverse slot to hold said body portion upon said surface support member, and spring means secured to said latch bar and to said stand maintaining said latch bar in normal position.

2. A pencil sharpener having a body member including a hollow chip receptacle portion thereupon and provided with a substantial circular first opening extending inwardly from the rear thereof and communicating with the interior of said chip receptacle portion, said body member also having a front wall provided with a second opening therewithin in alinement with said first opening, a rotatable cutter support member also within said chip receptacle portion having a stem member projecting rearwardly through said first opening, handle means secured to the projecting portion of said stem member, cutter means supported upon said cutter support member, pencil guide means operatively connected with said cutter and projecting forwardly through said second opening, a third opening provided within said chip receptacle portion, an openable cover disposed about said third opening, snap locking means upon said cover and complementary locking means upon the adjacent portion of said body member, a guide portion at the rear of said body member, and a stand member having a support portion removably and lockably disposable within said guide portion, said body portion being detachably removable from said stand member.

3. A pencil sharpener having a body member including a hollow chip receptacle portion thereupon and provided with a substantially circular first opening extending inwardly from the rear thereof and communicating with the interior of said chip receptacle portion, said body member also having a front wall provided with a second opening therewithin in alinement with said first opening, a rotatable cutter support member also within said chip receptacle portion having a stem member projecting rearwardly through said first opening, handle means secured to the projecting portion of said stem member, cutter means supported upon said cutter support member, pencil guide means operatively connected with said cutter and projecting forwardly through said second opening, a third opening provided within said chip receptacle portion, an openable cover disposed about said third opening, snap locking means upon said cover and complementary locking means upon the adjacent portion of said body member, a guide portion at the rear of said body portion, with a stand member having a base portion and upstanding support portion, said upstanding support portion being normally removably disposed within said guide portion, said body portion being detachably removable from said stand member.

4. A pencil sharpener having a body member including a hollow chip receptacle portion thereupon and provided with a substantially circular first opening extending inwardly from the rear thereof and communicating with the interior of said chip receptacle portion, said body member also having a front wall provided with a second opening therewithin in alinement with said first opening, a rotatable cutter support member also within said chip receptacle portion having a stem member projecting rearwardly through said first opening, handle means secured to the projecting portion of said stem member, cutter means supported upon said cutter support member, pencil guide means operatively connected with said cutter and projecting forwardly through said second opening, a third opening provided within said chip receptacle portion, an openable cover disposed about said third opening, snap locking means upon said cover and complementary lock ing means upon the adjacent portion of said body member, a guide portion at the rear of said body portion, a stand member having a base portion and an upstanding support portion, said upstanding support portion being normally lockably disposed within said guide portion, and detachable latching means upon said stand member normally preventing said support portion from being removed from said guide portion, said body portion being detachably removable from said stand member.

5. A pencil sharpener having a body member including a hollow chip receptacle portion thereupon, said body member being provided with a substantially circular first opening extending inwardly from the rear portion thereof and communicating with the interior of said chip receptacle portion, said body member also having a front wall provided with a second substantially circular opening therewithin in longitudinal alinement with said first opening; a rotatable cutter support member within said chip receptacle portion having a stem member projecting rearwardly through said first opening, handle means secured to the projecting portion of said stem member, cutter means rotatably supported upon said cutter support member, substantially circular pencil guide means having a pencil opening therewithin operatively connected with said cutter means and projecting forwardly through said second opening; a third opening provided at the bottom of said chip receptacle portion, a slidable and openable cover disposed about said third opening, snap locking means upon said cover and complementary locking means upon the adjacent portion of said body member, a plurality of guide members spaced from one another at the rear of said body member, a stand member having a base portion and an upstanding support portion, said upstanding support portion being normally lockably disposed within one of said guide members, and detachable latching means upon said stand member normally preventing said support portion from being removed from said guide portion.

6. A pencil sharpener as described in claim 5 wherein each of the guide members is bifurcated and the upstanding support portion of the stand member is also bifurcated.

7. A pencil sharpener having a body member having a rearwardly disposed support portion and a forwardly disposed hollow chip receptacle portion thereupon, said body member being provided with a substantially circular first opening upon its support portion extending inwardly therefrom and communicating with the interior of said chip receptacle portion, said body member also having a front wall provided with a second substantially circular opening therewithin in longitudinal alinement with said first opening; a rotatable cutter support member within said chip receptacle portion having a stem member projecting rearwardly through said first opening; handle means secured to the projecting portion of said stem member, cutter means rotatably supported upon said cutter support member, substantially circular pencil guide means having a pencil opening therewithin operatively connected with said cutter means and projecting forwardly through said second opening; a third opening provided within said chip receptacle portion, an openable cover disposed about said third opening, locking means upon said cover and complementary locking means upon the adjacent portion of said body member, a plurality of bifurcated guide members spaced from one another at the support portion of said body member, a stand member having a base portion and a bifurcated upstanding support portion, said upstanding support portion being normally disposed within one of the said guide members.

8. In a pencil sharpener the improvement which comprises a chip receptacle member formed with side and bottom portions, and having a slideway adjacent its bottom portion, said chip receptacle member also provided with an opening within its body portion; a slidably movable cover carried by said slideway and disposed about said opening, said chip receptacle member also having a forwardly disposed thickened portion upon its side portions, and a face plate provided with a perimetral recess embracing said thickened portion, the bottom portion of

said perimetral recess also serving as locking means for said cover.

9. A pencil sharpening device comprising a stand member and a body member detachably secured thereto, said stand member formed with a pair of spaced arms thereupon each having an offset holding portion at the top thereof, a pivotally movable latching member secured to one of said arms, said body member bearing a rotatable cutter support member carrying a pair of spaced cutter members and a handle member, a chip receptacle member surrounding and spaced from said cutter members, a plurality of spaced longitudinally slotted portions upon the rear of said chip receptacle member, each of said slotted portions also provided with a transverse slot thereacross, said slotted portions being disposed in pairs, each pair of slotted portions adapted to support the offset holding portions of the arms of said stand, said transverse slot being adapted to connect with said latching member.

10. A pencil sharpening device comprising a stand member and a body member detachably secured thereto, said stand member formed with a pair of spaced arms thereupon each having an offset holding portion at the top thereof, a pivotally movable latching member secured to one of said arms and extending thereacross, said body member bearing a rotatable cutter support member, a pair of spaced cutter members carried by said cutter support

member, a handle member secured to said cutter support member, a chip receptacle member surrounding and spaced from said cutter members provided with an opening in the bottom thereof, a slidable cover overlying said opening, a plurality of spaced longitudinally slotted portions upon the rear of said chip receptacle member, each of said slotted portions provided with a transverse slot thereacross, said slotted portions being disposed in pairs, each pair of slotted portions adapted to support the offset holding portions of the arms of said stand, said transverse slot being adapted to selectively connect with said latching member to secure said stand to said body member.

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