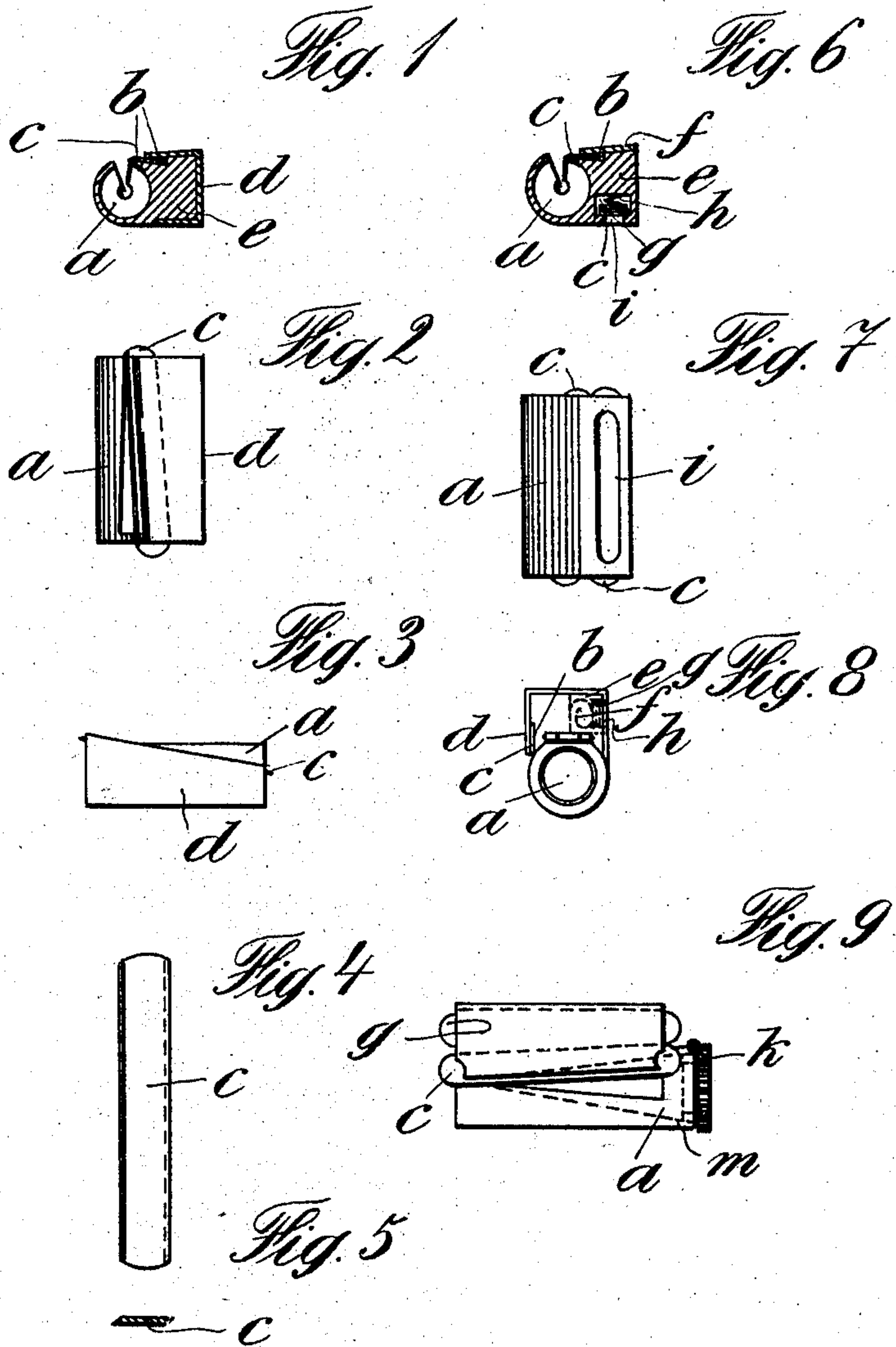


E. WEILER.  
PENCIL SHARPENER.  
APPLICATION FILED MAR. 5, 1910.

963,408.

Patented July 5, 1910.



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# UNITED STATES PATENT OFFICE.

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PENCIL-SHARPENER.

963,408.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed March 5, 1910. Serial No. 547,562.

*To all whom it may concern:*

Be it known that I, ERNST WEILER, mechanic, a citizen of the German Empire, residing at Berlin, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Pencil-Sharpeners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in pencil sharpeners, and more particularly to that class of sharpeners in which an exchangeable blade is provided.

The object of the improvements is to provide a sharpener in which the exchangeable blade adapts itself perfectly to the form of its bearing surface, so that the same blade may be used in sharpeners in which the cutting edge of the blade is straight, or in which the said edge is curved, as is the case in sharpeners which are used for cutting a curved or hollow point on the pencil.

With this object in view my invention consists in providing my improved pencil sharpener with a flexible blade. In order to have the required flexibility the blade is formed of very thin metal strips. By thus constructing the blade of thin metal I obtain the further advantage, that the edge has a longer life, than blades of ordinary thickness. Furthermore the cost of such a blade is considerably below that of the ordinary blades, so that a large number of blades can be supplied with the sharpener without materially increasing its cost. This is particularly advantageous, because it is difficult for a non-expert to properly grind the blades and afterward correctly fit the same in the sharpener. Such fitting must be effected with considerable accuracy, an inaccuracy of about one twentieth of a millimeter being detrimental to the satisfactory operation of the sharpener. In order to decrease the cost of the blade, I have found it advisable to reduce its thickness to 0.2 millimeter.

A further object of the improvements is to provide a cavity in my improved sharpener which is adapted for the reception of a plurality of thin blades which may be supplied with the sharpener.

My invention also relates to means for adapting the sharpener for sharpening pencils of different diameters. For this purpose, I provide my improved sharpener with

a removable sleeve forming a suitable guide for pencils of normal diameter, and which when removed permits the sharpening of a pencil of larger diameter.

With this and other objects in view my invention consists of the combination of parts described hereinafter and particularly pointed out in the appended claims, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

In said drawing—Figure 1, is a cross-section of the sharpener, Fig. 2, is a plan of the same, Fig. 3, is a side view seen from the right in Figs. 1 and 2, Fig. 4, is a detail view showing the blade on an enlarged scale, Fig. 5, is a cross-section of the blade, Fig. 6, is a cross-section similar to that of Fig. 1, showing a modification of the sharpener, Fig. 7, is a plan of Fig. 6, Fig. 8, is a cross-section similar to that of Fig. 1 showing a further modification, and Fig. 9, is a section of Fig. 8.

The same letters of reference have been used in all the views to indicate corresponding parts.

Referring particularly to the example illustrated in Figs. 1 to 5 of the drawing, a block *e* is formed with the usual conical bore *a* adapted to receive and guide the point of the pencil to be sharpened. At one of its sides the conical portion of the block is provided with a longitudinal slit through which the edge of the blade *c* projects substantially tangentially into the conical bore *a*, as is common in pencil sharpeners of the type shown. Adjacent to the said slit there is formed a bearing face *b* for the blade *c*. The latter consists of a strip of very thin metal, so that it can adapt itself to any form of the bearing *b*, whether the same be straight as is shown in the drawing, or curved for the purpose of forming a hollow or curved point on the pencil. The blade *c* is held in place by any preferred means. To show what may be done, I have shown a U-shaped clamp *d* which is adapted to be slipped over that portion of the block *e* which forms the bearing for the blade *c* so as to clamp the blade on the block *e*, and if desired the said clamp may be hinged with one of its ends to the block *e*. In securing the blade on its bearing, it is first placed on the same, whereupon the clamp *d* is slipped over the same. Or the



clamp is first placed on the block and the blade is slipped under the same, for which purpose the blade is made somewhat longer than the block *e*, so that its ends projecting  
 5 beyond the ends of the block provide a suitable means to hold the blade. However, the method of first removing the clamp *d* is deemed preferable, particularly where blades are used which are formed with a cutting  
 10 edge on both sides, because when inserting the blade below the clamp the edge is liable to be injured.

To illustrate the blade more in detail I have shown the same on an enlarged scale in  
 15 Figs. 4 and 5. As shown the blade is formed with two cutting edges. In order to better protect the edge of the blade which for the time is placed inside the bearing *b*, I prefer to taper the face of the bearing *b*  
 20 away from the adjacent face of the clamp *d*, as is shown in Fig. 1, so that the rear edge of the blade *c* is freely disposed in a hollow space, and the blade is in contact with the clamp *d* at its central portion only. The  
 25 rear edge of the blade *c* bears on a shoulder formed by the bearing *b*, so that the blade can easily be adjusted.

By using thin blades as described I am enabled to supply a large number of such  
 30 blades with the pencil sharpener and to store the same within the latter. A construction of the sharpener which answers this purpose has been illustrated in Figs. 6 and 7 of the  
 35 drawing. The construction of the sharpener is substantially the same as that shown in Figs. 1 to 5, with the exception that the blade is not held in place by means of a clamp *d* embracing the block *e* from opposite  
 40 sides, but by means of a plate *f* which is secured to the block in any suitable way, and which with the bearing face *b* provides a cavity for the blade the form of which is substantially the same as that of the corre-  
 45 sponding cavity of the block *e* shown in Figs. 1 to 5. At a suitable part of the block *e*, in the example shown on the side opposite the plate *f*, I provide a longitudinal hole *g* which extends through the block from one  
 50 end to the opposite end. Preferably the wall of the hole *g* is formed with a longitudinal slot *i*. The hole *g* provides a suitable space for storing a number of blades in the sharpener, and the said blades are held with-  
 55 in the said hole by means of a spring *h* adapted to force the blades against the slotted wall of the hole, so that the blades are held within the hole by friction. The number of the blades which can be stored within the hole *g*  
 60 depends on the thickness of the same, and I have found, that six blades can easily be placed within the said hole. By thus supplying a large number of blades with the sharpener which are always at hand the sharpener is made particularly useful, be-  
 65 cause the cutting edges of the blades become

dull after a comparatively short time of use, and the owner of the same is now in a position to replace a dull blade by another one, without having recourse to a mechanic. In the example illustrated the hole *g* is open at  
 70 both ends, so that the blades can easily be inserted from one end after first pressing the spring *h* backward through the slot *i*. But I wish it to be understood, that my invention is not limited to the form of the blade  
 75 receptacle shown.

In Figs. 8 and 9 I have shown an example of a sharpener which is constructed in a similar way as that shown in Figs. 6 and 7,  
 80 and which is also provided with a hole or cavity *g* for the reception of a number of blades. In the construction shown the said cavity is formed by a part of a U-shaped clamp *d* embracing the block *e* from both  
 85 sides, and constructed in the same way as the corresponding clamping element shown in Figs. 1 to 5. In addition to the parts previously described, the sharpener is formed with a flange *m* providing an extension of  
 90 the conical portion *a* of the block *e*, and the said flange is adapted to receive a sleeve *k* providing a suitable guide for the end of the pencil. By thus providing the sharpener with a sleeve *k* I am enabled to use the same  
 95 for sharpening pencils of different strength. If it is desired to sharpen a pencil of small diameter, I use my improved sharpener in the form shown in Fig. 9. If however the  
 100 diameter of the pencil is large, I first remove the sleeve *k* so that the pencil is guided within the bore of the flange *m*. In order to more easily adjust the blade on its bearing face *b* I provide projections on both  
 105 sides of the same which form a suitable guide.

In the foregoing I have described the blade as being flexible so as to adapt itself to any form of the bearing face *b*, for example to a curved bearing face. For this  
 110 purpose I construct the blade of a thin strip of metal, and I have found that I can reduce the thickness of the blade so far as to two tenths of one millimeter. Thereby I obtain an exceedingly flexible blade the cost  
 115 of which is considerably lower than that of the blades now in use. Besides I am able to supply a large number of such blades with the sharpener, which can easily be kept within the hollow or cavity *g* of the same. I have also found that the life of the cutting  
 120 edge is longer when using a thin blade.

I claim herein as my invention:

1. In a pencil sharpener, a body portion provided with a substantially conical opening to receive a pencil to be sharpened, said  
 125 body portion having one side thereof recessed, a blade disposed within said recess to be approximately flush with the surface of said side, a substantially U-shaped bracket to straddle said body portion and hold the  
 130



blade in place, and said U-shaped bracket being removable by a lateral movement of the same with relation to said body portion.

2. In a pencil sharpener, a body portion  
5 provided with an axial opening to receive a pencil to be sharpened, one side of said body portion being provided with a longitudinally extending recess having its bottom wall inclined downwardly away from the axial  
10 opening, a blade having both longitudinal edges sharpened arranged within the recess, and a U-shaped bracket straddling said body portion and engaging said blade at its longitudinal center only, to hold the same in  
15 place.

3. In a pencil sharpener, a body portion

provided with an axial opening to receive a pencil to be sharpened, a blade arranged upon said body portion to cooperate with said axial opening, a U-shaped bracket 20 adapted to straddle said body portion to hold said blade in position, and said U-shaped bracket being adapted to be positioned upon said body portion by a lateral movement of the same with relation to said body portion. 25

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ERNST WEILER.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.