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E. A. DODELIN

2,411,615

ABRADING DEVICE

Filed March 7, 1945

Fig. 1.

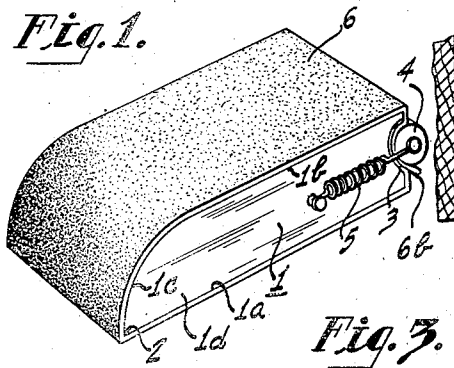


Fig. 2.

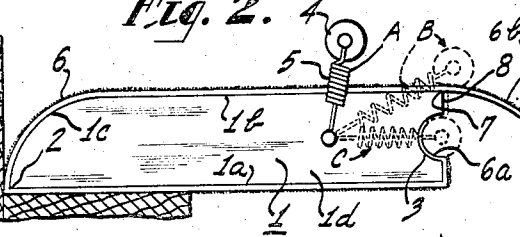


Fig. 3.

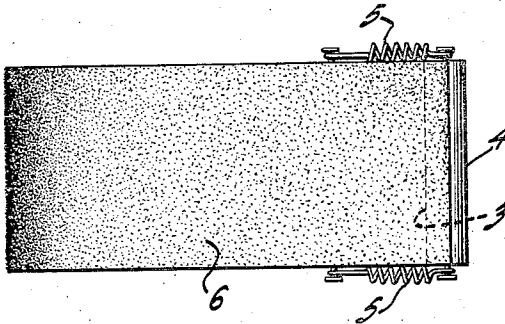


Fig. 4.

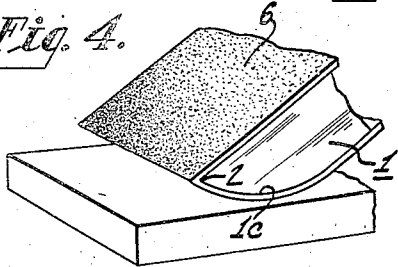


Fig. 5.

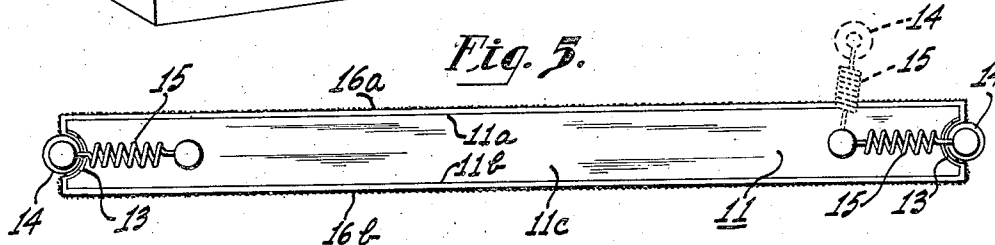
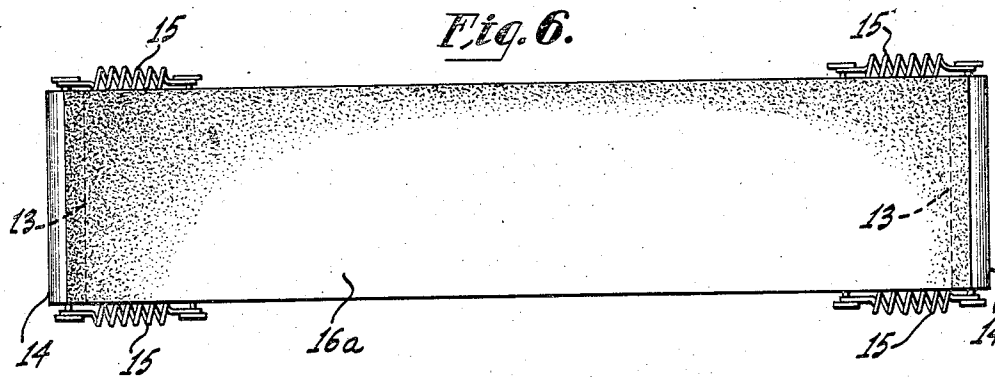


Fig. 6.



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ABRADING DEVICE

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5 Claims. (Cl. 51-185)

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This invention relates to abrasive devices, and more particularly to a device for supporting a strip or sheet of sandpaper, emery paper or cloth, or the like for use.

The principal object of my invention is to provide an improved device of this type which will hold the abrasive sheet firmly in place.

More particularly, it is an object of my invention to provide an improved abrasive sheet holder on which the abrasive sheet will be held with a tight fit at all times and from which the abrasive sheet will not come loose during use.

Another object of my invention is to provide an improved abrasive device which can be held comfortably in the hand of the user.

Still another object of my invention is to provide an improved abrasive device which can be manipulated with great ease over relatively rough surfaces to render the same smooth and clean.

A further object of my invention is to provide an improved abrasive device as aforesaid which can be used effectively both along small areas or spots and in corners, as well as along large, fully exposed areas.

It is also an object of my invention to provide an improved abrasive device as set forth above which is simple in construction, economical in cost, and highly efficient in use.

In accordance with one form of my invention, I provide a supporting block which has one plane face and an opposed face which is curved longitudinally at one end to meet the opposed, plane face along a transverse edge at this end of the block. The block is also formed with a transverse groove or seat at its other end. A pair of coil springs secured to the opposed side walls of the block rotatably carry a roller which they hold tightly against the aforesaid seat. When a sheet or strip of abrasive material is to be applied to the block, the roller is removed from the aforementioned groove or seat, one end of the abrasive sheet is placed against the groove, the sheet is then wrapped tightly around the block and its opposite end placed against its first mentioned end in overlapping relation therewith, and the roller is returned to the groove. The springs then pull the roller against the overlapped ends of the abrasive sheet to hold the sheet firmly against the block. The plane face of the block is useful in treating plane surfaces, the curved portion is useful in rubbing spots or other small areas, and the transverse edge is useful in corners. The block is preferably of such size that it can be held comfortably in the hand.

According to another form of my invention, an

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elongated supporting member is provided at both ends with transverse grooves, its opposed faces being either plane or curved as may be found most desirable. At each end of the supporting member, there is provided on its side walls a pair of cooperating coil springs which rotatably carry a roller for cooperation with the adjacent end groove. In this form of the invention, which is especially useful for sharpening knives and the like, two abrasive sheets may be applied, one to each face, the opposed ends of the two sheets being overlapped in the adjacent grooves and being firmly held therein by pressure of the associated roller.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, as well as additional objects and advantages thereof, will best be understood from the following description of two embodiments thereof, when read in connection with the accompanying drawing, in which

Figure 1 is a perspective view of one form of abrasive device according to my invention,

Figure 2 is a side elevation thereof showing how the device may be used in corners,

Figure 3 is a top plan view thereof,

Figure 4 is a fragmentary, perspective view thereof showing how this form of my invention may be used in smoothing a spot or small area,

Figure 5 is a side elevation of another form of abrading device according to my invention, and

Figure 6 is a top, plan view of the latter form of my invention.

Referring more particularly to the drawing, wherein similar reference characters designate corresponding parts throughout, there is shown, in Figures 1 to 4, a supporting block 1 having a plane face or surface 1a, an opposed face or surface 1b which is tapered by curving longitudinally at one end along a smooth curve 1c and meets the face 1a along a transverse edge 2, and a pair of side walls 1d. The other end of the block 1, which may be made of wood, metal, plastic, or any other suitable material, is formed with a transverse groove 3 constituting a seat for a roller 4. The roller 4 is rotatably carried by a pair of cooperating coil springs 5 which are secured to the side walls 1d of the block.

The block 1 is adapted to support a sheet 6 of sandpaper, emery cloth or other suitable abrasive material to render it easy to manipulate. When the sheet 6 is to be applied to the supporting block 1, the roller 4 is first removed from the

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groove 3 and is moved with its springs 5 to the position A shown in Figure 2. This permits the springs 5 to contract fully. One end portion 6a of the sheet 6 is then placed against the seat or groove 3 and, while the portion 6a is held in the groove 3 with the fingers, the sheet 6 is wrapped tightly around the face 1a, the edge 2, the curved portion 1c and the face 1b. The roller 4 is then brought down against the sheet 6 along the edge 7 of the block 1 as shown in the position B of Figure 2. In this position, the springs 5 are fully stretched and the roller therefore exerts considerable pressure against the abrasive sheet and the block. The roller 4 is then rolled down along the end portion 8 of the block 1 to the position C where it again seats in the groove 3. In rolling down to the position C, the roller engages the opposite end portion 6b of the sheet 6 and brings it into overlapping relation with the end 6a against the groove 3, at the same time tightening up any looseness that may be present in the sheet 6. In the position C, the springs 5 are contracted somewhat but still exert great pull on the roller 4 wherefore the roller exerts great pressure against the overlapping ends of the abrasive sheet and holds it firmly and tightly thereon.

The block 1 is of such a size that it can be held comfortably in the hand. When a large area of work is to be rendered smooth, the plane face 1a or the somewhat shorter plane face 1b can be applied thereto. If the work includes a corner, the corner can be reached easily by bringing the edge 2 thereagainst, as shown in Figure 2. Where a small area, such as a spot or the like, is to be given particular or selective treatment, for example, the block 1 may be turned over and its curved portion 1c applied thereto, as shown in Figure 4.

In Figures 5 and 6, there is shown another form of my invention in which the supporting member is comprised of an elongated block 11 formed with opposed, plane faces 11a and 11b, side walls 11c and a transverse groove 13 at each end. Secured to the side walls at each end of the supporting member 11 are two pairs of oppositely extending coil springs 15 which support the rollers 14. An abrasive sheet 16a of one type or grade may be applied to the face 11a and a second abrasive sheet 16b of either the same type, grade, etc. or other suitable type or grade (for example, fine emery cloth and coarse emery cloth) may be applied to the face 11b. The adjacent ends of the two sheets 16a and 16b are first overlapped in one of the grooves 13 and the associated roller 14 is brought into engagement therewith after which the sheets 16a and 16b are drawn tight, their other ends are brought into overlapping relation in the opposite groove 3, and the second roller 14 is brought into its groove 13 in a manner similar to that described with reference to the positions A, B and C of Figure 2. The sheets 16a and 16b are then held firmly and tightly on the supporting member 11 and the device is ready for use. This form of my invention is particularly useful for sharpening knives and similar utensils.

Although I have shown and described two

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forms of my invention in considerable detail, it will be apparent to those skilled in the art that many other forms thereof are possible. I therefore desire that my invention shall not be limited except insofar as is made necessary by the prior art and by the spirit of the appended claims.

I claim as my invention:

1. An abrading device comprising a supporting member having a groove at one end extending transversely thereacross, said member being adapted to have a sheet of abrasive material placed thereon with at least one end of said sheet in said groove, a pair of coil springs secured to said member on the sides thereof adjacent to said grooved end thereof, and a roller rotatably carried by said springs for cooperation with said groove to releasably lock said sheet in said groove under the influence of said springs.

2. An abrading device comprising a block having a groove at one end extending transversely thereacross, said block being adapted to have a sheet of abrasive material wrapped around it with the end portions of said sheet in overlapped relation against said groove, a pair of coil springs secured to said block on the sides thereof adjacent to said grooved end thereof, and a roller rotatably carried by said springs for cooperation with said groove to releasably lock said overlapping sheet portions against said groove under the influence of said springs.

3. An abrading device comprising a block having a longitudinally tapered surface at one end thereof meeting the opposed surface along a transverse edge, said block having a transversely extending groove therein at its other end and being adapted to have a sheet of abrasive material wrapped around it with an intermediate portion of said sheet bent around said transverse edge and the end portions of said sheet in overlapped relation against said groove, a pair of coil springs secured to said block on the sides thereof and adjacent to said grooved end thereof, and a roller rotatably carried by said springs for cooperation with said groove to releasably lock said overlapping sheet portions firmly against said groove under the influence of said springs.

4. An abrading device according to claim 3 wherein said longitudinally tapered surface is formed along a smooth curve and wherein said opposed surface is disposed in a plane.

5. An abrasive device comprising an elongated supporting member provided with a transversely extending groove at each end, said member being adapted to receive an elongated sheet of abrasive material on each of its opposed faces with the end portions of each of said sheets bent over the ends of said member and disposed against said groove, two pairs of opposed cooperating coil springs carried by said member on the opposite sides thereof adjacent to its ends, and a roller rotatably carried by each pair of said springs, one of said rollers being adapted to cooperate with one of said grooves and the other of said rollers being adapted to cooperate with the other of said grooves to releasably lock the respective ends of said sheets in said grooves under the influence of their respectively associated coil springs.

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