

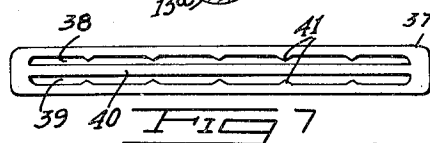
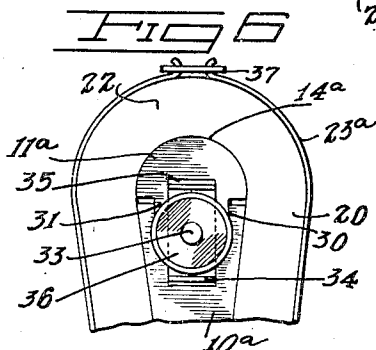
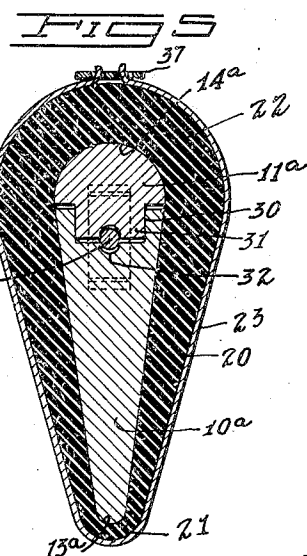
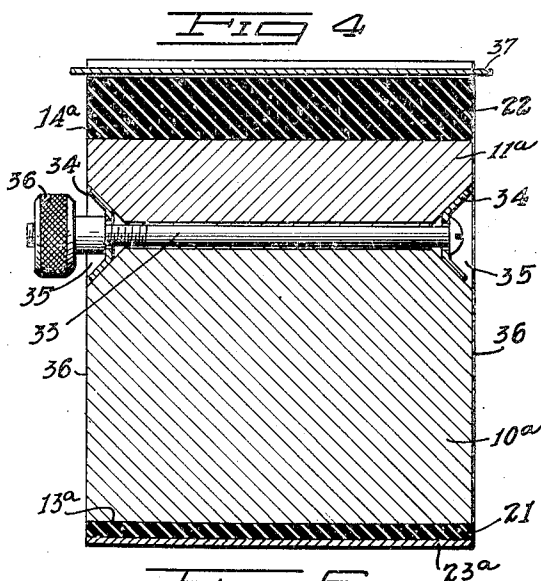
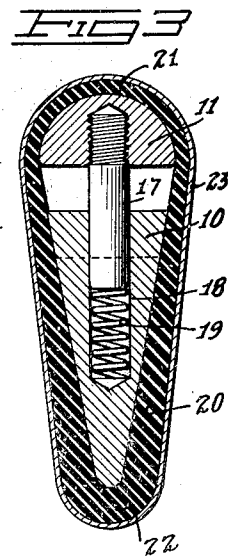
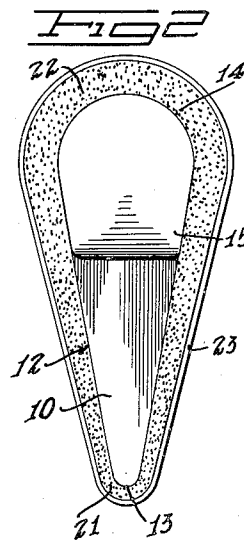
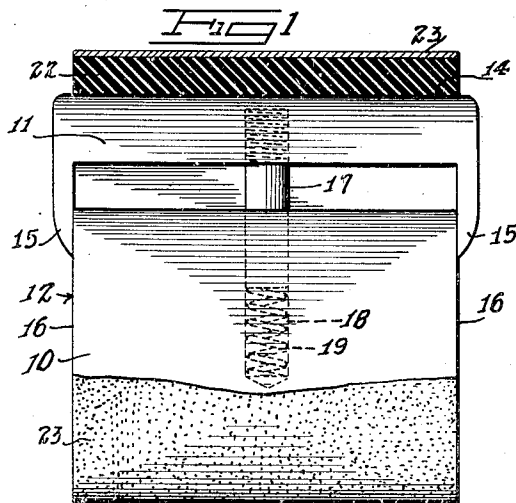
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SANDING BLOCK

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This invention relates to improvements in abrasive tools and is particularly directed to a hand sander device having certain novel features of construction.

The principal object of this invention is to provide an abrasive tool of the type employing an abrasive strip mounted on a supporting core, the core comprising a central tapered block encircled by a resilient sleeve.

Another object is to provide such a device in which the sleeve wall thickness tapers from a relatively thin section to a relatively thick section, the sleeve being adapted to be positioned on the block with its thick portion adjacent either the large end or the small end of the block.

Another object is to provide a device of this type in which the central tapered block is composed of a pair of separable segments, together with means for spreading the segments in order to tension the sleeve and the encircling abrasive strip.

Other more particular and detailed objects and advantages will appear hereinafter.

In the drawings:

Figure 1 is a side elevation partly in section showing a preferred embodiment of this invention.

Figure 2 is an end elevation of the device shown in Figure 1.

Figure 3 is a sectional elevation showing the sleeve positioned differently with respect to the central block.

Figure 4 is a longitudinal sectional elevation of a modified form of this invention.

Figure 5 is a transverse sectional view of the device shown in Figure 4.

Figure 6 is an end elevation partly broken away of the device shown in Figure 4.

Figure 7 is a detailed view of a clip which may be employed for securing the ends of the encircling abrasive strip.

Referring to the drawings, a pair of segments 10 and 11 cooperate to form a central tapered block generally designated 12. The segment 10 may be rounded with a relatively small radius of curvature as shown at its small end 13. The segment 11 may be rounded with a relatively large radius of curvature as shown at its large end 14. Guide means are provided between the segments 10 and 11, and as shown this means may include the lips 15 on the segment 11 adapted to slidably receive the parallel edges 16 of the segment 10. A central post 17 secured to the segment 11 extends into and is slidably received by a bore 18 provided in the segment 10. From this descrip-

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tion it will be understood that the segments 10 and 11 may have relative sliding motion along the axis of the post 17. Means are provided for spreading the segments 10 and 11, and this means may comprise the coil spring 19 acting in compression and positioned within the lower end of the bore 18 and adapted to act on the end of the post 17.

A resilient rubber-like sleeve 20 encircles the separable tapered block 12. The wall thickness of the sleeve 20 varies gradually from a relatively thin portion 21 to a relatively thick portion 22. The sleeve 20 may be shifted around the central block 12 in order to bring the thick portion 22 adjacent either the large end 14 of the segment 11 as shown in Figure 2, or the small end 13 of the segment 10 as shown in Figure 3. An abrasive strip 23 which may be composed of sand paper, emery cloth, or the like, encircles the sleeve 20. The compression spring 19 serves to spread the segments 10 and 11 and thereby tension the sleeve 20 and abrasive strip 23.

The cooperative relationship between the tapered block 12 and the sleeve 20 having the tapered wall thickness is such that by suitably positioning the sleeve relative to the block any desired radius of curvature at the small end of the device may be obtained within limits of particular design. Thus, if a relatively sharp-nosed abrasive tool is desired, the sleeve 20 is positioned as shown in Figure 2, whereas if a more blunt nose is required the sleeve 20 is positioned as shown in Figure 3. The sleeve may be shifted from one position to the other by manually grasping the device in a manner to compress the spring 19 and thereby release the tension imposed on the sleeve 20 and abrasive strip 23. The latter may then be repositioned on the central block in any desired position. The position of the abrasive strip 23 with respect to the supporting sleeve 20 may likewise be changed from time to time in order to present a new surface at the point of activity. A fresh abrasive strip may be installed whenever such replacement is desirable.

In the modified form of the invention shown in Figures 4 to 7 inclusive, the same form of rubber-like sleeve 20 may be employed having a relatively thick wall section 22 and a relatively thin wall section 21. The separable segments 10a and 11a are provided with similar rounded ends 13a and 14a respectively, but the guide means and means for spreading the segments may take a different form. As shown in Figure 5, the transversely extending slot 30 may be provided at the upper end of the segment 10a adapted to slidably

receive the projection 31 formed on the upper segment 11a. Juxtapositioned grooves 32 in the segments 10a and 11a form a transverse opening through which the tension bolt 33 extends. Wedge elements 34 at opposite ends of the bolt are received within wedge-shaped cavities or pockets 35 formed in the opposite parallel edges 36 of the segments 10a and 11a. The angular relationship of the walls of the pockets 35 is such that upon tightening the nut 36 upon the bolt 33 the wedge members 34 are moved inwardly and thereby act to separate the segments 10a and 11a longitudinally.

An abrasive strip 23a encircles the sleeve 20. This strip 23a may be identical to the continuous strip 23 illustrated in Figures 1 to 3, or may comprise a single length of abrasive material having its two ends secured by means of a clamp 37. As shown in Figure 7, the clamp 37 may be provided with longitudinal slots 38 and 39 separated by the central bar 40. Teeth 41 spaced along the edges of the slots 38 and 39 are adapted to engage the material of the abrasive strip to prevent slipping. In operation the sleeve 20 is positioned on the block segments 10a and 11a in the desired manner, and the abrasive strip 23a is then wrapped around the sleeve 20. The nut 36 is unscrewed sufficiently to allow the segments 10a and 11a to be retracted as far as possible, and the ends of the abrasive strip are drawn through the slots 38 and 39 in the clip 37. The nut 36 is then tightened on the bolt 33 to spread the segments 10a and 11a and thereby tension the resilient sleeve 20 and the abrasive strip 23a.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claims.

I claim:

1. An abrasive tool comprising a central tapered block; a resilient rubber-like sleeve encircling the block, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion; and an abrasive strip encircling the sleeve.

2. In a device of the class described adapted to be encircled by an abrasive strip, the combination of a central tapered block; a resilient rubber-like sleeve encircling the block, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion.

3. In a device of the class described for supporting an encircling abrasive strip, the combination of a central tapered block; a distortable sleeve encircling the block, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion.

4. An abrasive tool comprising a central block; a resilient rubber-like sleeve encircling the block, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion, the sleeve being shiftable relative to the block to position the relatively thin portion of the sleeve adjacent any desired part of the block; and an abrasive strip encircling the sleeve.

5. In a device of the class described for supporting an encircling abrasive strip, the combination of a central tapered block; a resilient rubber-like sleeve encircling the block, the wall thickness of the sleeve being relatively thin at one end and relatively thick at another portion, the sleeve being shiftable relative to the block to position the relatively thin portion of the sleeve adjacent either end of the tapered block.

6. An abrasive tool comprising a central tapered block; a resilient sleeve encircling the block, the wall thickness of the sleeve being relatively thin at one position and relatively thick at another position, the sleeve being shiftable relative to the block to position the relatively thin portion of the sleeve adjacent either end of the tapered block; and an abrasive strip encircling the sleeve.

7. A resilient rubber-like sleeve for an abrasive tool, the wall thickness of the sleeve tapering substantially uniformly from a relatively thin portion to a relatively thick portion.

8. An abrasive tool comprising a tapered segmental block; a resilient rubber-like sleeve encircling the block segments, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion; an abrasive strip encircling the sleeve, and an expanding device for separating the block segments to secure the abrasive strip on the sleeve.

9. In a device of the class described adapted to be encircled by an abrasive strip, the combination of a tapered segmental block; a resilient rubber-like sleeve encircling the block segments, the wall thickness of the sleeve varying gradually from a relatively thin portion to a relatively thick portion, and an expanding device for separating the block segments to secure the abrasive strip on the sleeve.

10. In a device of the class described for supporting an encircling abrasive strip, the combination of a tapered segmental block; a resilient rubber-like sleeve encircling the block segments; the wall thickness of the sleeve varying from a relatively thick portion to a relatively thin portion, the sleeve being shiftable around the block segments to position either the thick or thin portion thereof adjacent either the large end or small end of the segmental block, and an expanding device for separating the block segments to secure the abrasive strip on the sleeve.

11. In a device of the class described for supporting an encircling abrasive strip, the combination of a wedge-shaped block member comprising a pair of relatively movable segments; cooperating guide means on the segments; a resilient rubber-like sleeve encircling the block segments, the wall thickness of the sleeve varying from a relatively thin portion to a relatively thick portion; and resilient means within the block member adapted to spread the segments along the guide means to tension the sleeve.

12. In a device of the class described for supporting an encircling abrasive strip, the combination of a wedge-shaped block member comprising a pair of relatively movable segments; cooperating guide means on the segments; a resilient rubber-like sleeve encircling the block segments, the wall thickness of the sleeve varying from a relatively thin portion to a relatively thick portion; and adjustable means including an element extending transversely of the guide means adapted to tension the sleeve.

13. In a device of the class described for supporting an encircling abrasive strip, the combination of a pair of separable segments cooperating to form a central tapered block, one of the segments forming the large end of the block and the other segment forming the small end of the block; a rubber-like sleeve encircling the block segments, the wall thickness of the sleeve being relatively thick at one position and relatively thin at another position, the sleeve being shiftable around the block to bring the

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thick portion of the sleeve adjacent the end of either one of the said segments; and means for spreading the segments to tension the sleeve.

14. In a device of the class described for supporting an encircling abrasive strip, the combination of a pair of separable segments cooperating to form a central tapered block, one of the segments forming the large end of the block and the other segment forming the small end of the block; a rubber-like sleeve encircling the block segments, the wall thickness of the sleeve being relatively thick at one position and relatively thin at another position, the sleeve being shiftable around the block to bring the thick portion of the sleeve adjacent the end of either one of the said segments; a post on one of the segments slidably mounted in an aperture provided in the other; and resilient means for spreading the segments longitudinally of the post in order to tension the sleeve and the encircling abrasive strip.

15. In a device of the class described for supporting an encircling abrasive strip, the combination of a pair of separable segments cooperating to form a central tapered block, one of the segments forming the large end of the block and the other segment forming the small end of the block; a rubber-like sleeve encircling the block segments, the wall thickness of the sleeve being

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relatively thick at one position and relatively thin at another position, the sleeve being shiftable around the block to bring the thick portion of the sleeve adjacent the end of either one of the said segments; cooperating angular surfaces on said segments providing wedge-shaped sockets upon opposite lateral sides of the block; wedge elements in said sockets; and adjustable clamping means including an element extending transversely between said wedge elements, said means being adapted to draw the wedge elements inwardly and thereby spread the segments to tension the sleeve and the encircling abrasive strip.

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