Feb. 4, 1947. J. PAVLOVIC 2,415,367

ABRADING TOOL

Filed Jan. 22, 1945

FIG. 1

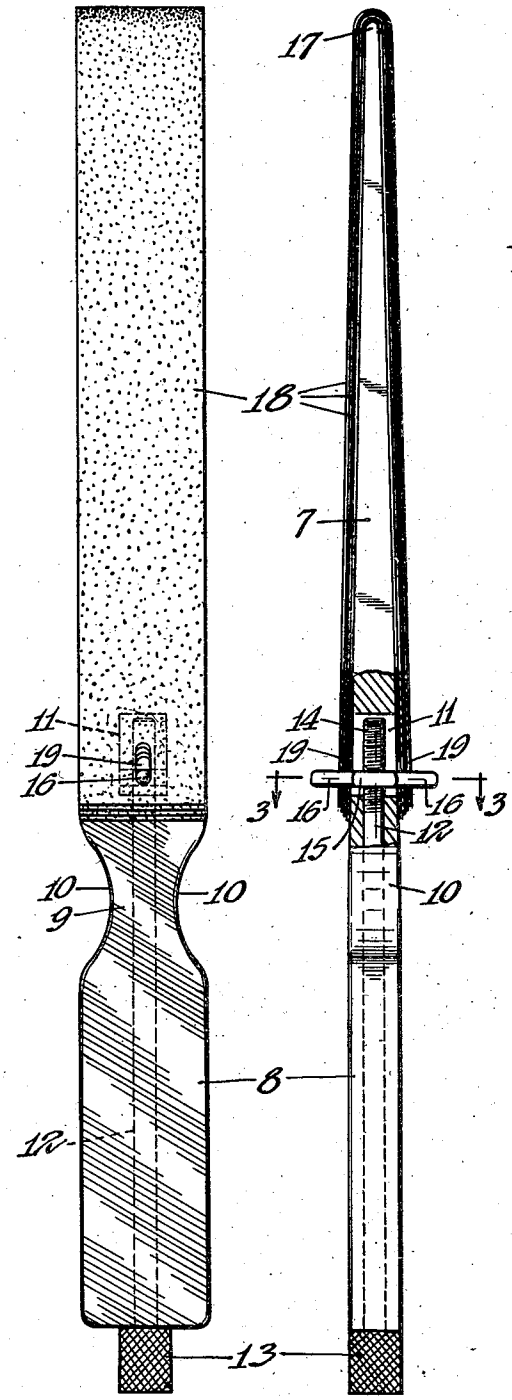


FIG. 2

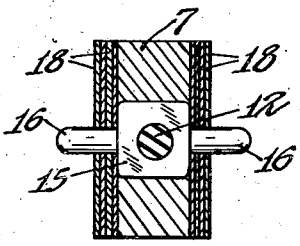


FIG. 3

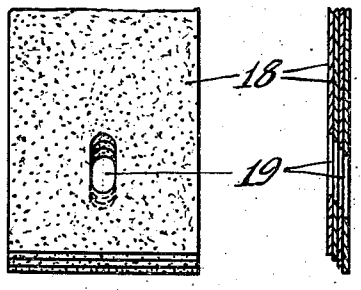


FIG. 4

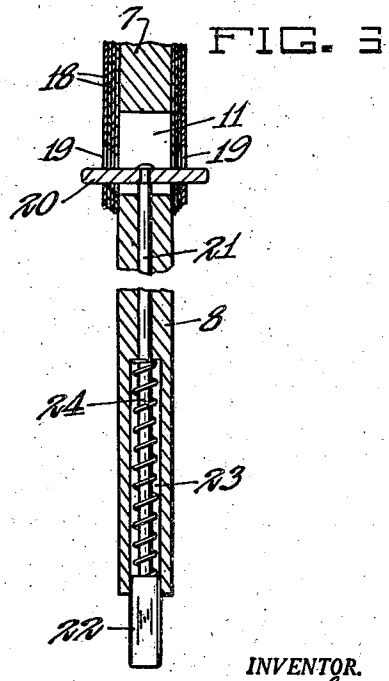


FIG. 5

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ABRADING TOOL

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5 Claims. (Cl. 51—187)

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This invention relates to an abrading tool.

It is an object of the invention to provide an abrading tool having means for effectively retaining a stack of abrasive sheets in such a way that they can be easily applied to the tool and can be quickly and easily removed in section as the outer sheets are worn away in use.

Another object of the invention is to provide a simply constructed tool body with means for effectively securing a stack of specially formed sheets wherein the outermost sheets are held under tension and the underlying sheets are held in position at least partially by the tension applied to said outermost sheets.

A further object of the invention is to provide an abrasive sheet having apertures formed therein in such a way as to permit their cheap manufacture and also for quick and easy mounting on a supporting tool body.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawing, wherein like reference characters refer to the same parts throughout the views, and, in which:

Figure 1 is a plan view thereof;

Figure 2 is a side elevation of the device with portions broken away and in section;

Figure 3 is an enlarged section taken approximately on the line 3—3 of Figure 2;

Figure 4 is an enlarged fragmentary section of a stack of sheets in their normal operating position;

Figure 5 is a longitudinal sectional view through the stack of sheets in Figure 4; and

Figure 6 is a fragmentary longitudinal sectional view through a modified form of sheet holder.

In the drawing there is shown a sheet holding body 7 which preferably is tapered toward its upper or outer end and whose outer end edge is rounded as shown in Figure 2. A handle 8 forms a part of and extends from one end of the body 7. Where the body 7 and handle 8 join I provide a reduced portion 9 formed by arcuate cut-outs 10 to provide finger and thumb receiving seats.

The body 7 adjacent the point where it joins the handle 8 has a longitudinally elongated aperture 11 therethrough. A rod 12 extends longitudinally through the handle 8. The outer end of the rod 12 is provided with a knurled head 13 and the inner end of said rod is threaded as at 14 and extends through a rectangular member 15 having a threaded aperture therein. The member 15 has a pair of pin-like projections 16

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extending from opposite sides thereof outwardly of the aperture 11 and beyond opposite sides of the supporting body 7.

Lying about the rounded end edge 17 of the body 7 and along opposite sides of said body are abrasive sheets 18 which are in stacked relation. Each of said abrasive sheets 18 has an elongated aperture 19 formed therein adjacent each of the end edges of the strip-like sheet with said apertures 19 on the same longitudinal axis, said axis also being the longitudinal axis of each of the elongated strips or sheets 18.

The strips or sheets 18 are placed in a stack and are bent around the end to lie along opposite sides of the body 7 as shown in Figure 2. The apertures 19 of all the strips 18 are the same distance apart but when bent around the body 7 the underlying strips 18 closer to the body will extend farther along opposite sides of the body than those strips or sheets which lie above or outside of the inner strips. As a result the apertures 19 in the several strips will lie at different points relative to the apertures in other strips of the stack even though the strips are identical in size and aperture placement when laid out flat.

The rod 12 is rotated to move the member 15 with its projecting pins 16 toward the body end 17 so that said pins 16 will conveniently pass through all the apertures in the opposite ends of the stack of abrasive strips or sheets 18. The rod 12 is then rotated in the opposite direction to move the member 15 and projecting pins 16 toward the handle 8. This will cause the pins 16 to move to the lower ends of the elongated apertures 19 in the outermost sheet or two thus placing said sheet or two under tension and holding the entire stack tightly on the body 7. The underlying sheets or strips are not under tension since the pins 16 have not moved to the ends of the apertures in those sheets but said underlying sheets will be held firmly by the overlying ones and will not become displaced when the device is in use.

When the outer sheet or strip is worn it is necessary only to release it by moving the retaining pins 16 slightly away from the handle 8 and slipping the sheet from the pins 16. The pins are then moved back toward the handle by rotation of the rod 12 to firmly engage the next succeeding outermost sheet in the same manner as when the stack was first applied.

In Figure 6 there is shown a modified form of sheet engaging means. The body 7 having the aperture 11 and handle 8 is provided with a cross pin 20 extending outwardly in the same manner

as the pins 16. Secured to the cross pin 20 is a rod 21 which is longitudinally slidable in the handle 8. The outwardly projecting end of the rod 21 is enlarged as at 22, said enlarged end lying partially in an enlarged bore 23 formed partially into the handle from the outer end thereof. A compression spring 24 lies in the bore 23 between its inner end and the inner end of the enlarged rod portion 22. Consequently, there is normally a tendency for the rod 21 to be urged toward the outer end of the handle 8, the cross pin 20, of course, being subject to the same force. When it is desired to release the stack of sheets or strips from the pin 20 the enlarged end 22 is merely pressed inwardly to move the pin 20 in the same direction. The sheets are applied, retained and succesively removed from this structure in the same general manner as in the construction shown in Figures 1 through 3.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What I claim is:

1. In an abrading tool, a body having a continuous sheet supporting surface extending along opposite sides and about an end of the body, a pair of abrasive sheet engaging members projecting outwardly from opposite sides of said body and adapted to extend through portions of said sheet adjacent opposite ends thereof when the sheet is placed about said end and along opposite sides of the body, and means for moving at least one of said projecting elements toward and away from an end of said body.

2. In an abrading tool, an elongated body having a handle formed on one end thereof, said body having an aperture therein adjacent the base of said handle, an abrasive sheet engaging device including a member located in said aperture and movable therein toward and away from the end of said body, said engaging device including members extending from said apertures transversely and at opposite sides of said body, and means for moving said engaging device in said aperture.

3. In an abrading tool, a body having a handle thereon and having an aperture therethrough adjacent the base of said handle, an abrasive sheet engaging member located in said aperture and having portions extending transversely outwardly therefrom at opposite sides of said body, and a rotary threaded element extending through said handle and threaded into said abrasive sheet engaging member and adapted to shift said member in said aperture and longitudinally of said body.

4. In an abrading tool, a body having a handle thereon and having an aperture therethrough adjacent the base of said handle, an abrasive sheet engaging member located in said aperture and having portions thereof extending therefrom transversely to and at opposite sides of said body, a rod extending through said handle and secured to said engaging member, said rod being longitudinally slidable in said handle and said member being shiftable in said aperture with sliding movement of said rod, and spring means normally urging said rod and engaging member in one direction.

5. In an abrading tool, a supporting body, a pair of projecting elements extending outwardly from opposite sides of and transversely to said body in the form of pin-like members, a stack of abrasive sheets lying about said body and along opposite sides thereof, said abrasive sheets being substantially identical in size, and each of said sheets having an aperture therein adjacent opposite ends thereof and receiving said pin-like projections therethrough with the outermost of said sheets under tension between said pin-like projections and about the sides of said end of said body, the underlying sheets being free of tension and held in position by said tensioned outermost of said sheets.

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