

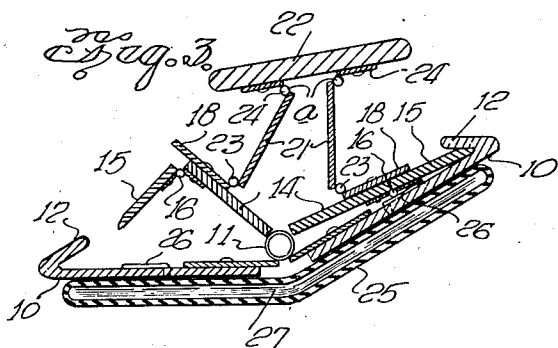
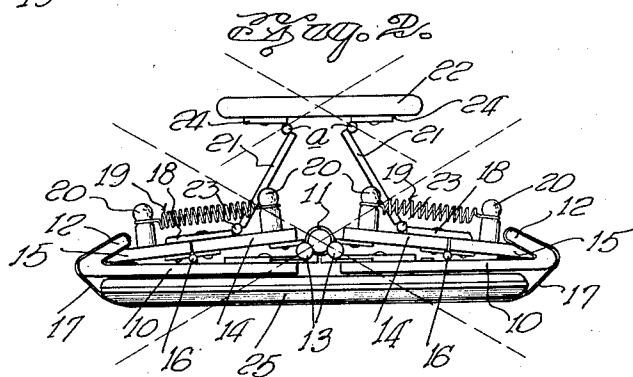
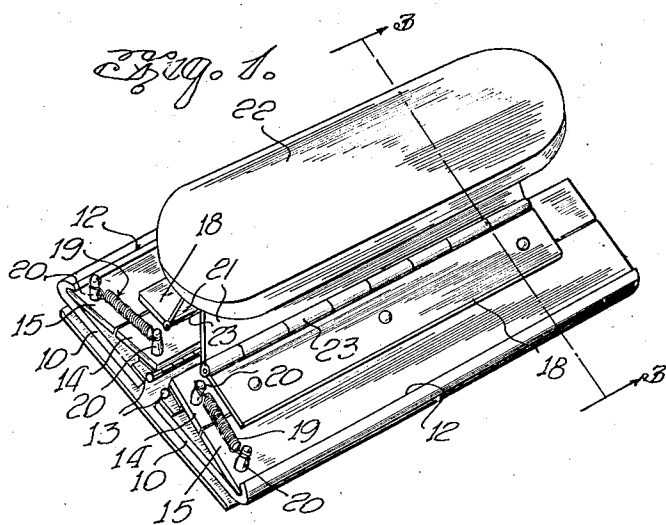
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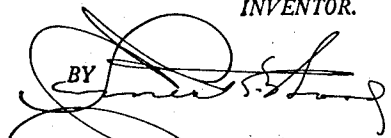
2,402,069

ABRADING AND POLISHING TOOL

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ABRADING AND POLISHING TOOL

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5 Claims. (Cl. 51-187)

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This invention relates to abrading and polishing equipment and more particularly to appliances, either manually or power operated whose operative faces follow the contour of the surface against which they are applied.

The principal object of the invention is to provide an abrading or polishing tool consisting of a frame of articulated construction, having for a basic element a cushion consisting of a fluid containing pad whose flexibility, combined with the responsiveness of the frame, permits the surface of the cushion, under pressure imposed on the frame, to conform to the contour of the surface being abraded or polished. Moreover, the contents of the cushion, being fluid are instrumental in equalizing the imposed pressure, thereby insuring effectiveness of the abrading or polishing means superimposing the pad throughout its entire area.

Another object of the invention is to provide a polishing sanding or abrading tool whose peculiar construction enables one to affix a sheet of sandpaper, emery cloth or a polishing cloth in a minimum of time and after having been applied, the sheet or cloth is maintained under tension with no securing means other than the parts of the frame especially designed to hold the same.

With the foregoing objects as paramount, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawing wherein:

Figure 1 is a top perspective view of a polishing and abrading tool constructed according to the invention.

Figure 2 is a side elevational view thereof, and Figure 3 is a view in transverse section, taken on line 3-3 on Figure 1, showing displacement of frame parts preparatory to receiving a polishing or abrading cloth or paper.

Continuing with a more detailed description of the drawing, reference numeral 10 denotes two parallel plates, spaced apart but hingedly joined together by means of a hinge 11 (Figs. 2 and 3). The outer edges of these plates are turned upwardly and inwardly at 12 and further reference to this detail will be made presently.

Secured to the inner edge of each plate 10 by means of a hinge 13 is a plate 14 and hingedly joined in turn to the plate 14 is another plate 15, the hinge 16 forming the connection between plates 14 and 15 being opposite to that connecting the plates 10 together, as described. The object of so mounting the hinges is shown clearly

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in Figure 3, i. e., to permit the plates 14 and 15 to be moved in relation to the plate 10 over which they are adapted to lie. By so doing, the edge of a sheet of sand paper or emery cloth 17 may be placed over the lips 12 of the plates 10 may be clamped firmly by thrusting the outer edge of the outer plate 15 thereagainst and forcing the two plates 14 and 15 into a plane flush with plate 10 over which they lie. The said edges of plates 15 will lie under the lips 12, in the manner shown in Figures 1 and 2 and the cloth or paper 17, as the case may be, cannot become displaced.

Affixed longitudinally to each of the inner plates 14 is a strip 18, which overlies the joint between the plates 14 and 15, as shown to afford a stop against the action of a spring 19 connected at its ends to posts 20, one being affixed to plate 14 and the other to the companion plate 15. The springs 19 function to hold the plates 15 under the lips or receptacles 12 of base plates 10, as shown in Figure 2 especially.

The strips 18 are, in fact, sections of a hinge, the companion sections 21 providing a mounting for an operating handle 22, the joints of the hinges composed of members 18 and 21 being designated at 23. Strips 24, affixed to the underside of the handle 22 are hinged at a to the handle supporting sections 21, just described.

As a medium for equally distributing the effective pressure of the handle 22 when the tool is applied to the work, a cushion 25 is removably secured to the underside of the frame that is to say, to the plates 10. Any mode of mounting the pad may be adapted but in the present case, metal tabs 26 (Fig. 3) are suitably affixed to one face of the pad, to enter slots in plates 10 and are bent downwardly onto the upper surfaces of the said plates, as shown.

The pad 25 is constructed preferably of rubber in which is sealed a quantity of oil, grease or air 27 (Fig. 3) to produce the cushion effect described and to insure uniformity of contact of paper or cloth sheet overlying the pad 25, throughout its entire area with the surface of the work as the tool is moved thereover. It is obvious that in the event a pad is desired which may be refilled with fluid, a suitable valve may be provided, however, it has been found in practice that the sealed pad, without mishap, serves effectively over long periods without requiring refilling with fluid.

From the foregoing it is apparent that by placing the tool on the work, for example the fender or body of an automobile or other curved surface, the articulated frame will follow the irregularity

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in the work surface and the pad or cushion 25, being pliant, will follow elevations or depressions to scour, sand or polish these areas difficult of access. In Figure 3, intercrossed dotted lines suggest generally the relative pivoted displacement between the handle and frame and between sections of the frame, disclosing that the pad or cushion 25 may be made to conform to a curve, either regular or irregular; to convex and concave as well as plano surfaces. By using the tool, the effective area sanded or polished is increased greatly beyond that which can be covered by applying the sanding paper or polishing cloth by hand. In many cases, such as in sanding the parts of a vehicle body, water is used with sanding paper or cloth.

It is obvious that this practice can be continued with better results in using the tool of the invention. Moreover, with but few variations, the tool may be adapted to any suitable and well known pneumatic power unit.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. A polishing and abrading tool including parallel base plates hinged together along their adjacent edges and having longitudinal receptacles along their opposite edges, hinged plates coextensive with and overlying each of said base plates, the confronting edges of the inner of said hinged plates being hinged to said base plates, a cushion overlying the undersurfaces of said base plates, a work performing sheet overlying said cushion, whose edges overlie the outer edges of said base plates to be held in the receptacles thereon by the outer edges of said coextensive plates and a handle having hinged connection with the inner of said coextensive plates.

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2. A polishing and abrading tool comprising an articulated frame consisting of parallel, relatively hinged base plates each having a receptacle along its outer edge, a pliant cushion attached to the undersurfaces of said base plates, relatively hinged pairs of plates overlying each of said base plates, an abrading sheet held by its edges in the receptacles of said base plates by the edges of said overlying plates and means hingedly connected to said overlying plates for actuating said tool.

3. A polishing and abrading tool including parallel base plates hinged along their confronting edges, a pliant cushion carried by said plates, a work performing piece, hinged pairs of plates overlying said base plates, means along the outer edges of said base plates for receiving opposite edges of said work piece and held therein by the outer edges of said overlying plates and means having hinged relation to said overlying plates for actuating said tool.

4. A polishing and abrading tool including an articulated frame comprising relatively hinged base sections, a cushion removably mounted on said sections, an abrading sheet overlying said cushion and having its opposite edges overreaching those of said base sections, hinged sections overlying said base sections, frictionally retaining the edges of said sheet to hold the latter on said cushion and means hingedly connected to said overlying hinged sections for actuating said tool.

5. A polishing and abrading tool comprising an articulated fram including longitudinally hinged base sections, a cushion removably attached to said base sections, an abrading sheet overlying said cushion, hinged means hingedly attached to said base sections for detachably holding said sheet on said cushion and means hingedly attached to said first means for actuating said tool.

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