HAND SANDER FOR FLAT AND VARIOUSLY CURVED SURFACES

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The invention which is disclosed herein relates to sanding devices which are held in the hand.

Special objects of the invention are to provide a hand sander which can be used equally well on both flat and rounded surfaces.

Further special objects of the invention are to provide a sander which will adjust itself automatically to variously curved surfaces and which will hold the rubbing material, usually considered sandpaper, equally well under all conditions and shapes of curvature.

Other important objects of the invention are to provide a hand sander in which the sandpaper will be automatically gripped and held on the holder and in which the sandpaper may be quickly and easily placed on and be removed from the holder and be turned around to various positions to provide fresh rubbing surfaces after a portion has become worn out.

Other desirable objects have been attained by constructing the holder in a tubular open ended form of U-shaped cross section and providing the sandpaper in the form of a close fitting sleeve which can be slid endwise over the holder into position bridging the open side of the holder and providing thereby a stretch of the sandpaper which will yield to conform itself to variously curved surfaces.

Other features and advantages of the invention are set forth and will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present practical embodiment of the invention.

It will be appreciated however that structure may be modified and changed as regards the immediate illustration all within the true intent and scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a perspective view illustrating the sander as in use in rubbing a rounded object such as the rung of a chair or the like.

Fig. 2 is an enlarged perspective and part broken view illustrating the invention.

Fig. 3 is a cross sectional view as on substantially the plane of line 3--3 of Fig. 2.

Fig. 4 is an end view showing in broken and full lines the sides of the U-shaped holder may collapse more or less to permit sagging of the unsupported side of the sandpaper to fit the curvature of an object.

In the drawing the holder is shown as an open trough-shaped object, of substantially U-shaped cross section and of a size to be conveniently gripped in the fingers of a hand.

This holder may be of sheet metal, plastic, wood, cardboard or other stiff but somewhat flexible and resilient material.

Light gauge sheet aluminum has been found very satisfactory in this material in strip form being readily rolled, stamped or otherwise shaped to provide the desired U-shape cross section made up of the back wall and connected resilient side walls 8 and 9.

The outer corners and edges of this U-shaped form may be slightly rounded or beveled as indicated at 10 to avoid cutting or wearing the sandpaper and to facilitate slipping the sandpaper into position or removing it from the holder.

The sandpaper is in the form of a sleeve 11 of a size to closely fit over the holder. It is shown as consisting of a single piece having the ends abutted in engagement at 12 and secured in this form by an underlying layer of tape 13, preferably adhesively secured to the sandpaper and of a width and length substantially equal to the side of the holder. This provides substantial support for and securing of the meeting edge portions and avoids any seams or unevenness in the sandpaper surface.

In practice the sandpaper sleeve may be slipped over the U-shaped holder with the joined edges over the back wall 7 of the holder as shown in Figs. 2, 3 and 4. This leaves the double thickness layer over the flat back of the holder and a single thickness layer of sandpaper at 14 over the open side of the holder in position to bend as required to fit over any rounded surfaces such as that indicated at 15. Ordinarily the bridging portion 14 will be held substantially flat as shown in Fig. 3, more or less tensioned by the yielding side walls 8 and 9, but free to be deflected as required to fit differently shaped surfaces.

The three other sides of the holder provide flat, fully supported sandpapering surfaces so the holder may be turned over from one side to another for any flat surface work or be used at the open side for variously curved or other than simply flat surfaces.

By shifting the sleeve around on the holder from one side to another all four faces of the sleeve may be used at the open side or be used on the closed sides of the holder.

If extra strength or stiffness of sandpaper is desired for curved or other such work the sleeve may be positioned on the holder with the double thickness or reinforced portion 13 across the open side of the holder.

The invention thus can be adjusted and used in many different ways.

The U-shaped holder is light but strong and quite inexpensive.

The sandpaper sleeves may be made up at low cost on folding and pasting machines and may be packed and shipped in flat folded form ready to be opened up and slipped over the holders.

The invention is suited to the use of various forms of rubbing and scrubbing materials so the term sandpaper has been used in a broad sense.

The U-shaped holders may be made up of substantially square cross section channel stock which may be cut any desired lengths.

These channel shaped holders of more or less springy material may have the sides sprung somewhat to exert a definite spring holding grip on the sleeve to prevent longitudinal slipping of the sleeve while in use.

Also, it is contemplated that the free edges of the side walls may be notched slightly, roughened or barbed to exert a definite holding on the sleeve to seat and secure the sleeve against external slipping or movement.

In this simple one-piece construction no need of special holding means for the sandpaper is eliminated.

What is claimed is:

1. A hand sander for rubbing either flat or rounded surfaces comprising a three sided holder of hand grip size and of springy material having two substantially parallel spaced side walls connected in substantially parallel spaced apart relation by a back wall forming an inverted U-shaped open channel and a corresponding quadrangular shaped four sided sleeve of flexible rub-
bining material engaged over and closely fitting said channel shaped holder in position with one side of the same bridging the spaced side walls at the open side of the holder and normally held in tension by the springy character of the holder whereby said bridging portion of the flexible rubbing material may be yieldingly pressed over a rounded object, the three sides of the holder and the space at the open side of the holder being substantially equal in size so that the correspondingly shaped sleeve may be slipped into position over the holder with any one of the four sides of the same bridging the open side of the holder for use on a rounded object, leaving the other three sides of the sleeve for rubbing flat surfaces and said holder exerting expanding tension on the surrounding sleeve to retain the latter in position thereon for normal rubbing operations.

2. A hand sander for rubbing either flat or rounded surfaces comprising a three sided holder of hand grip size and of springy material having two substantially parallel spaced side walls connected in substantially parallel spaced apart relation by a back wall forming an inverted U-shaped open channel and a correspondingly quadrangular shaped four sided sleeve of flexible rubbing material engaged over and closely fitting said channel shaped holder in position with one side of the same bridging the spaced side walls at the open side of the holder and normally held in tension by the springy character of the holder whereby said bridging portion of the flexible rubbing material may be yieldingly pressed over a rounded object.

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