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R. S. MANCHESTER ET AL

3,014,318

BACK-UP PAD

Filed July 18, 1960

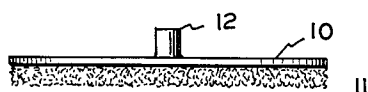


FIG. 1

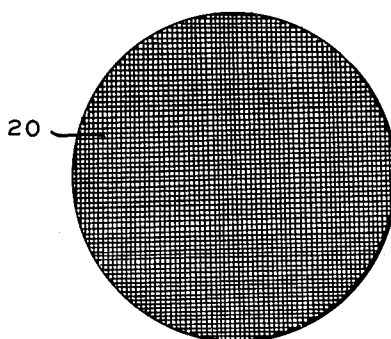


FIG. 2

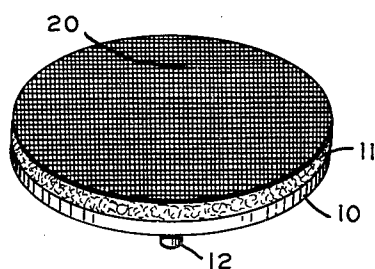


FIG. 3

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1

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BACK-UP PAD

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2 Claims. (Cl. 51-195)

This invention relates to a combined back-up pad and holding device for flexible abrasive coated discs, and in particular for abrasive coated discs formed of open mesh material.

In the past it has been common practice to attach abrasive discs to a back-up pad by means of a mechanical fastener usually passing through a hole in the center of the disc, or to cement or glue the disc to a back-up pad. In either case the attachment of the disc requires a certain amount of time and effort.

A principal object of this invention is therefore to provide an inexpensive resilient, durable back-up pad for coated abrasive discs which can be employed as a backing for coated abrasives with a minimum of time and effort involved in attaching the disc to the pad.

In the following description of the invention reference is made to the accompanying drawings in which:

FIGURE 1 is a side view of a back-up pad of our invention;

FIGURE 2 is a view of one side of a coated abrasive disc of the type adapted to be mounted in the back-up pad of FIGURE 1; and

FIGURE 3 is a perspective view of the combined pad and disc of FIGURES 1 and 2.

Referring now to FIGURE 1, 10 is a rubber or other flexible backing, 11 is a fibrous disc adhered to the rubber backing and 12 is an internally threaded boss whereby the unit may be attached to a rotating shaft such as on a portable electric drill or other drive means.

FIGURE 2 shows a coated abrasive disc 20 of the open mesh construction such as described in U.S. Patents 2,123,581 to Anderson and Re. 21,862 to Anderson. Such products can be seen through and contain from 15 to 25 mesh openings per lineal inch in both the warp and fill directions.

FIGURE 3 shows the combination of the back-up pad on disc whereby the disc is merely applied to the fibrous pad and is held by it in driving relationship without the need for adhesives, mechanical devices or a central aperture in the abrasive disc.

The fibrous pad 11 may be made of a bonded mass of coarse fibers of nylon or other synthetic fiber or may be made up of natural fibers so treated as to provide durability and water resistance as by coating the fibers with a rubber composition or other flexible wear resistant and water resistant material. Since abrasive devices of this type are commonly employed in a wet sanding operation it is important that the fibrous mass be water resistant. For this reason metallic fibers which are expensive and are

2

subject to corrosion and mechanical disintegration are unsuitable for use in this invention. Furthermore, there is a danger of scratching fine finishes in the use of a metal fiber pad.

5 The materials described in copending application Serial No. 782,689, now abandoned, are particularly useful as fibrous pads in this invention. Obviously no abrasive grain need be employed in the pad itself, although the pads may be otherwise made in the manner described in the copending application.

10 The fibrous pads, such as are useful in our invention, are made up of water and solvent resistant natural or synthetic organic fibers. A particularly suitable fiber is nylon. The pads are made up of short lengths of the desired fiber bonded together by a water and solvent resistant binder to produce a pad that is light and open (non-felted) in construction, permits free flow of liquids there-through and is resistant to physical or chemical attack by water or solvents which may be employed in the abrading operation. The pad should be so formed that a substantial portion of fiber ends project from the face of the pad 11 to project into the mesh openings of the open mesh abrasive sheet 20 and so form a driving connection there-with.

20 Suitable binders for the fibers of pad 11 are natural and synthetic rubbery materials which can be processed into a dry non-tacky state and thermoplastic and thermosetting resinous adhesives or cements, which are resistant to softening by water or common organic solvents or oils.

We claim:

1. A combination of a back-up pad and an open mesh, abrasive coated disc, said back-up pad being in a driving relation to said disc, said pad comprising a shaped mass of organic fibers randomly oriented and bonded together to form a permeable mass which is resilient and self-supporting, and a flexible backing member adapted to be rotatably driven adhered to one side of said shaped mass, said abrasive coated disc adapted to be mechanically driven by said permeable mass by means of random fiber ends projecting into said disc at the side opposite from said one side of said shaped mass.

2. A combination of a back-up pad and an open mesh, abrasive coated disc, said back-up pad being in a driving relation to said disc, said pad comprising a shaped mass of organic fibers randomly oriented and bonded together to form a permeable, solvent resistant, and self-supporting mass, and a flexible backing member adapted to be rotatably driven attached to one side of said shaped mass, said abrasive coated disc adapted to be mechanically driven and held by said shaped mass by means of random fiber ends projecting into mesh openings in said disc.

References Cited in the file of this patent
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