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METHOD OF CLEANING ABRASIVE SURFACES

Filed Dec. 13, 1932

Fig. 1.

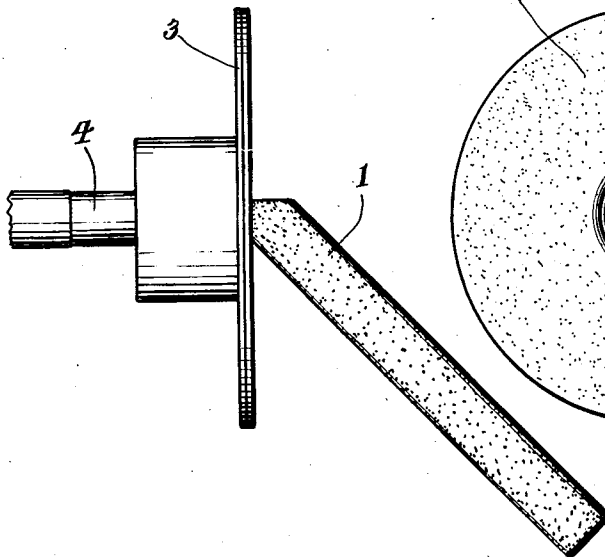


Fig. 2.

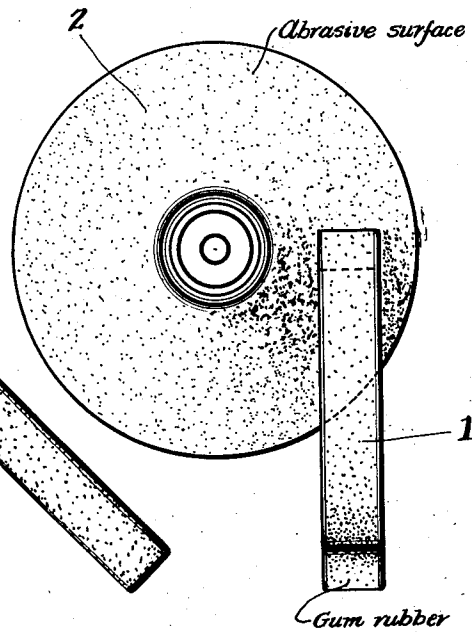


Fig. 3.

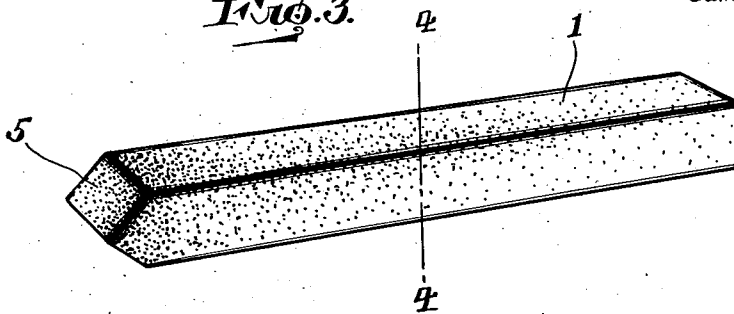
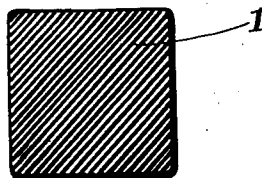


Fig. 4.



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METHOD OF CLEANING ABRASIVE SURFACES

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2 Claims. (Cl. 15—269)

This invention relates in general to abrading and more particularly has reference to a method and means of caring for and preserving abrading surfaces.

5 The various surfaces used for grinding and abrading such as sandpaper, emery paper, etc., are effective only so long as the sharp cutting edges are free to dig into the work and perform their function. Experience has shown how-
10 ever that after a short period of use, particularly when the work being abraded is paint or wood and like materials, the abrading surface will become filled in with the material removed and a glazed surface will be formed over the abrasive, preventing it from acting to perform its function
15 and causing it to burn the work if continued in use.

For many years such abrasive material, once used until it has become glazed, has been treated as utterly worn out on the theory that the grit
20 face had been worn down smooth or the roughened surface had become filled in with wood paints, gums, or varnishes so as to present a glazed and non-abrasive surface. In either event
25 no means have ever heretofore been discovered or devised for renewing an abrasive surface thus reduced to ineffectiveness.

When abrasive surfaces have reached this condition they are of course no longer useful, and
30 the practice in the past has been to throw them away. This has entailed enormous waste not only in loss of abrasives, but also in the time required to take off old and place new abrasives on abrading machines.

35 The principal object of this invention is therefore to overcome the difficulties just mentioned and others existing in prior practice.

Another object of this invention is to provide a method and means of reconditioning glazed and
40 filled in abrasive surfaces without materially harming the surfaces.

Another object is to provide a method and means for removing caked material from glazed sandpaper or the like without harming the abra-
45 sive surface.

Another object is to prolong the useful life of abrasive surfaces such as above mentioned and to greatly reduce the time lost in making the frequent changes of abrasive now necessary on
50 abrading machines.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, but it is to be distinctly understood that the forms
55 set forth in said description and drawing are by

way of illustration and example only and are not to be taken as in any way limiting the spirit and scope of this invention. It will be apparent that numerous changes, and modifications may be made in the embodiment set forth without
5 departing from the spirit and scope of this invention, which is to be limited only by the prior art and by the terms of the appended claims.

Referring now to the drawing in which like numerals indicate corresponding parts through-
10 out:

Figure 1 is an elevation showing the device of this invention being applied to the face of an abrasive wheel in accordance with the practice of
15 this invention;

Figure 2 is a view similar to Figure 1 but taken at right angles thereto;

Figure 3 is a perspective view illustrating the device of this invention; and

Figure 4 is a cross section taken along the line
20 4—4 of Figure 3.

It is well known of course that rubber has been used for a great many years for erasing ink marks or pencil marks and the like from paper or other smooth surfaces, the mechanical operation being
25 that the rubber thus used removes a part of the surface written or marked upon, whereby the marking is also removed. However, if this action were exerted upon glazed sandpaper or the like, it would be obviously undesirable because the
30 abrasive surface would be seriously impaired thereby, if not totally destroyed.

It has therefore been generally supposed to be impossible to remove the glaze from used sand-
35 paper or the like either by rubber or any other means without tearing loose the particles of abrasive and thus destroying the abrading surface.

In the present discovery the operation is just the reverse to what it is in using a rubber to erase markings from a smooth surface. In the renew-
40 ing of an abrasive surface, it is necessary to not remove any of the physical surface of the abrasive material itself. The object sought requires a removal merely of the substances which clog the roughened surface, remove such particles from
45 the interstices of that surface while at the same time permitting the natural abrasive surface to remain unchanged. To do this requires not so much a rubbing-off action as a picking out action. In other words, the materials which cause the
50 roughened surface to become glazed must be picked out in order to restore the surface to its original roughened and gritty condition.

It has been discovered after experimentation with various methods in an effort to reclaim used
55

sandpaper and the like, that the only universally successful substance and method for accomplishing this result is to apply frictionally to the used abrasive surface a substantial piece of gum rubber in a condition which may be best described as being neither hard nor soft but of sufficient rigidity and flexibility to maintain a substantial pressure against the glazed abrasive surface while motion is transmitted between the contacting surfaces. As previously stated, this action does not result in removing any of the abrasive surface, but the piece of rubber thus applied creates a vacuum and gripping action against the glazed surface of the abrasive so that there is produced a constant outward pull of considerable force. This action loosens those foreign substances that clog the interstices of the abrasive surface. It also causes particles of the rubber to disintegrate into small balls. As the gripping and vacuum action caused upon the first application of the rubber loosens and breaks up the glazed surface of the abrasive, the small balls of rubber, cause the loosened particles to be removed from the grit of the abrasive surface without also removing or injuring the grit.

The device for carrying out the objects of this invention is illustrated as embodying a block 1 of live pure gum rubber, although it will be understood that other substances having similar desirable properties may be substituted therefor.

In Figures 1 and 2 the block of rubber 1 is shown being applied to the abrasive face 2 of a sanding disc 3, the disc being mounted in the usual manner upon a shaft 4 and driven by any convenient means. The end of the block 1 may be beveled to form a V-shaped end as shown at 5 in order that it may be more conveniently used. In practice first one face of the V-shaped end and then the other may be used, and it will be apparent that the advantageous shape of the end of the block may thus be retained throughout its life.

It is noted that the block of rubber shown is elongated and, by reference to Figure 4, of substantially square cross section. This is so that the block itself may be used as a handle by grasping it at a point spaced from the beveled end. By thus making it relatively as thick as it is wide it will have sufficient stiffness to exert the necessary force on the operative surface without bending unduly. If it were thinner for instance, it would not possess sufficient stiffness relative to

the size of the operative surfaces, to enable it to be used as a handle in pressing these surfaces against the work.

It will be further noted by reference to Figure 1 that the angle between the two operative surfaces is substantially a right angle. This is so that when each of these surfaces is pressed against the work it will be solidly backed throughout by a solid mass of rubber. If this angle were substantially less than a right angle for instance, then the portion of the block adjacent the apex would be relatively thin and weak and would not be held against the work with as much force as the portions more remote from the apex, but when constructed as shown, the portion adjacent the apex is substantially as strong as the more remote portions.

Although the device of this invention has been shown in use on a sanding disc, it will be understood that it may be used on other forms of abrading devices as well.

The great advantages to be derived from the discovery just described will be readily apparent to one skilled in the art. As soon as the abrasive surface begins to show a glaze, it is but a matter of holding the rubber block against the surface for a short time and removing the glaze instead of continuing to work with a surface which is rapidly decreasing in efficiency, in order to get all the good out of the abrasive, and at the same time running the risk of spoiling the work by burning it on the glazed paper. The abrasive will last much longer, the time lost in working with partly glazed abrasive will be practically eliminated, the poor work resulting from using partly glazed abrasive will be discontinued, and the time lost in changing abrasive on abrading machines will be greatly reduced.

Having described my invention, I claim:

1. The method of removing the glaze from used abrading surfaces comprising pressing a block of resilient gum rubber against such a surface, and moving the block and surface relative to each other while the block is pressed against the abrading surface.

2. The method of cleaning abrasive material which consists in pressing a rubber body against the moving abrading surface, the rubber body having such softness and consistency that it will adhere to foreign matter on and embedded in said surface and remove the same therefrom.

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