

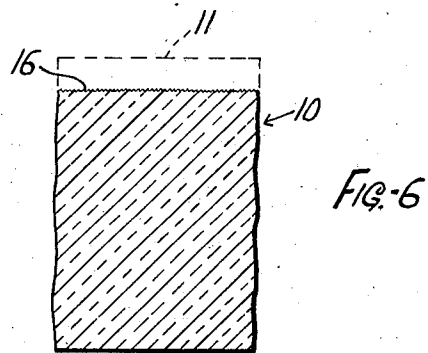
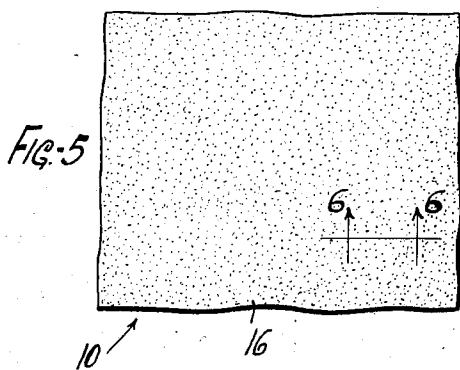
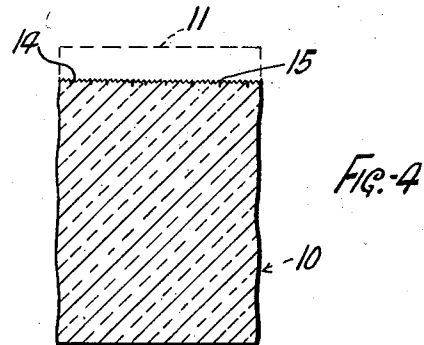
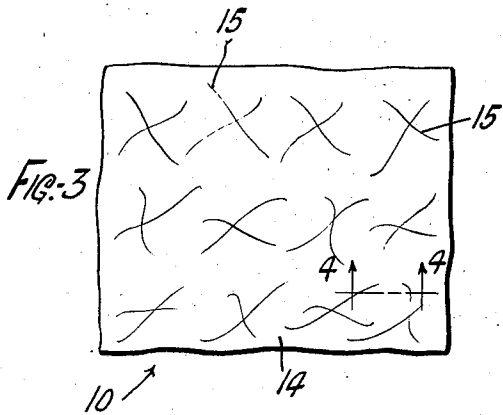
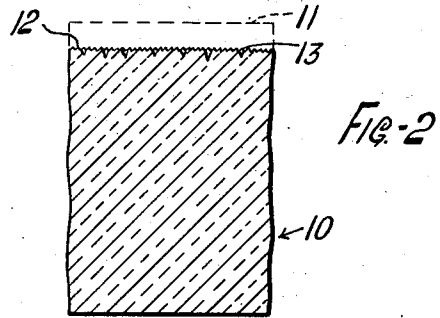
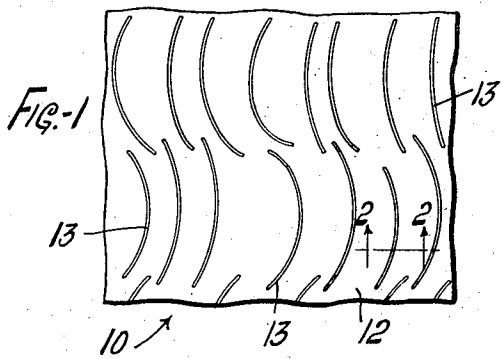
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2,312,299

METHOD OF DRESSING SLATE

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## UNITED STATES PATENT OFFICE

2,312,299

## METHOD OF DRESSING SLATE

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5 Claims. (Cl. 51—281)

This invention relates to a method of dressing slate and, more particularly, to a method of re-surfacing slate blackboards which have been installed and used in school rooms.

Heretofore, slate for blackboards has been dressed at the quarry or slate dressing plants by grinding and polishing the sawed slate sheets in a planar grinding machine. In such grinding and polishing operations, a considerable amount of heat is produced; in order to prevent the slate from cracking and sealing, the slate is thoroughly wetted during such operations. After the slate is polished and dried, the surface is usually stained with an oil or water stain to give the slate the desired black color, the natural color of such polished slate being a medium or light gray.

Slate dressed in the manner described has been generally considered satisfactory except in several particulars which heretofore have been considered inherent characteristics of the stone, viz., slate so ground, polished, and stained will reflect light with a glare which is injurious to the eyes, complicates school-room lighting, and which usually renders the writing thereon illegible when viewed at an angle; chalk will often produce an undesirable "squeak" due to an insufficient "chalk drag" on the surface; such slate blackboards must be washed to be thoroughly cleaned; after a few years use, the slate becomes bleached and must be restained, which seems to increase its glare-producing characteristics; after several years use, the surface becomes rotted and rough and must often be replaced with new slate. Furthermore, veined slates could not be used for blackboards because it was substantially impossible to grind and polish such slates to a smooth surface satisfactory for blackboard use; also, such veined slates will not take a stain evenly so that a stain accentuates rather than reduces the variation in color between the veins.

It is an object of this invention to provide a method of dressing slate and, particularly, of redressing slate blackboards, the surfaces of which have become rotted and roughened through use. Slate dressed by this method is provided with a smooth, non-glare surface which is appreciably darker than what was heretofore considered the natural color of dressed slate. It is another object of this invention to provide a method of dressing slate so that the writing in chalk thereon will be legible from nearly all angles. Another object of this invention is to produce a surface for slate which will provide a better "chalk drag" and thus reduce "squeak-

ing." It is also an object of this invention to provide a surface which may be thoroughly cleaned with an eraser. The advantages of this invention, therefore, are that staining and restaining is eliminated, school lighting problems are simplified, the life of a slate blackboard so dressed is prolonged by eliminating the need for washing the board, and old blackboards which were heretofore considered unfit for further use may be satisfactorily resurfaced.

It is a still further object and advantage of this invention that veined slates may be provided with a satisfactory writing surface. Other and further advantages will be apparent from the following specification, claims, and drawing in which:

Fig. 1 represents a portion of a rough-dressed surface of a sheet of slate;

Fig. 2 is a magnified cross-section taken along the line 2—2 of Fig. 1;

Fig. 3 represents a portion of a surface of a sheet of slate in an intermediate stage of this process;

Fig. 4 is a magnified cross-section taken along the line 4—4 of Fig. 3;

Fig. 5 represents a portion of the surface of a sheet of slate dressed by this method;

Fig. 6 is a magnified cross-section taken along the line 6—6 of Fig. 5.

In the drawing, 10 represents a portion of a sheet of slate which is to be redressed by the method disclosed herein, as, for example, a sheet of slate which has been installed in a school room for many years. The surface of such slate (indicated by the line 11 in Fig. 2) is usually so rotten and rough that it is no longer fit for use as a blackboard. Heretofore, such slate would be discarded and replaced with a new sheet of dressed, polished, and stained slate. By this process, however, such slate may be renovated and given a new, darker and non-glare surface superior to the surface obtainable heretofore only in new slate.

To redress the slate 10, the old surface 11 is removed by dry grinding the surface with a comparatively rough abrasive, as, for example, sandpaper carrying No. 24 to No. 36 grit. Although such grinding operations may be done by hand, a machine, such as, for example, the one described in the United States patent to Stetler, No. 2,075,369, is preferably employed. Because the old surface of the slate is ground dry, care should be taken to drive the grinding head so that the abrasive moves over the surface at a comparatively slow rate of speed, such as, for

example, approximately twenty feet per second. Thus, the slate 10 does not scale or crack under the heat produced by the dry grinding operation. The dust produced by the grinding operation may be removed by a suction head adjacent the grinding head.

The surface 12 produced by grinding the old surface 11 is clean and smooth in appearance, the rotten slate having been removed by the grinding operation. Preferably, a thickness of slate varying between a thirty-second of an inch and one sixty-fourth of an inch is removed, depending upon the depth to which the old surface of the slate has been rotted or scratched. If the slate is veined, care should be taken to remove approximately the same amount of slate from the hard strata as from the soft strata; similarly, if the slate has become warped, it is neither expedient nor necessary to grind the slate to a plane surface. It is merely necessary to remove the rough and rotted surface from the low spots as well as from the high spots.

Although a rough-ground surface 12 will be clean and smooth in appearance, the separate particles of abrasive will leave the surface 12 with a plurality of grooves 13, (shown to an exaggerated degree in Figs. 1 and 2), which are perceptible to the touch, and which become visible when chalk is rubbed into them.

After the slate 10 is rough-ground, the grooves 13 are removed by employing an intermediate abrasive, such as, for example, a pad of "wet or dry" sandpaper carrying No. 180 grit. This intermediate step may be performed by machine but is preferably performed by hand. Thus, any differences in contour between hard and soft veins in the slate which still exist in the rough-ground surface 12 may be smoothed out. The intermediate abrasive may be used either wet or dry, but is preferably moistened slightly to settle the fine slate dust produced and thus protect the operator.

The surface 14 produced by the foregoing intermediate step is apparently smooth and clean to the touch, as well as to the eye. The intermediate abrasive, however, leaves many fine scratches 15 (shown to an exaggerated degree in Figs. 3 and 4) in which chalk dust is likely to be retained. It is at this stage that the surface 14 is noticeably darker than the apparently natural color of the slate when ground and polished by the methods employed in the prior art.

As a final step, the slate 10 is scrubbed with an extremely fine abrasive and a detergent, such as, for example, a mixture of fine pumice and soap moistened with sufficient water to form a paste. This operation may be performed with a machine but is preferably performed by employing an ordinary hand scrubbing brush to scrub the slate 10. After the slate 10 is scrubbed with the abrasive detergent, it is washed clean with clear water.

The surface 16 produced by scrubbing the surface 14 with an abrasive detergent is dull and free from scratches, best described as a soft "satin" finish. It is appreciably darker than the apparent natural color of slate ground and polished by the usual methods. Thus, the tendency of the slate to reflect light with a glare is re-

duced to a minimum, writing thereon is legible from substantially any angle, and staining is unnecessary. The minute roughness of the surface 16 provides an excellent chalk "drag," so that there is little tendency for chalk to "squeak"; the small pores in the surface 16, however, are open so that the slate may be thoroughly cleaned with an eraser, which is preferably of chamois, lamb-skin, or latex sponge. It is known that the rotting and bleaching of slate blackboards is caused in part, at least, by the alkaline solution of chalk and chalk binder in the water used to wash the blackboards. Since it is unnecessary to wash slate blackboards dressed by this method, the life of blackboards so dressed is materially increased.

Since the veins in slate dressed by this method do not cause the production of sharp changes in contour of the surface of the slate, veined slates which heretofore were unsuitable for blackboard purposes may be dressed by this method to provide a satisfactory writing surface.

The foregoing description has been directed to the use of this method for renovating old blackboards. It is apparent, however, that this method may be used with equal success for dressing new slate. This invention, therefore, is not limited to the particular embodiment disclosed, but is limited only by the following claims.

What is claimed is:

1. A method of dressing slate comprising the steps of grinding the slate with a first abrasive, smoothing the slate with a finer second abrasive, and scrubbing the slate with an abrasive detergent.

2. A method of dressing slate comprising the steps of grinding the surface of the slate with a coarse abrasive in an absence of liquid, smoothing the ground surface of the slate with a finer abrasive, and scrubbing the smoothed surface of the slate with a paste comprised of fine powdered abrasive, soap, and water.

3. A method of dressing slate comprising the steps of grinding and smoothing the surface of the slate with an abrasive, scrubbing the smoothed surface of the slate with a paste of an abrasive detergent and water, and washing the abrasive detergent paste from the scrubbed surface with water.

4. A method of renovating slate blackboards comprising the steps of grinding off the rotted and scratched surface with a coarse abrasive, smoothing the ground surface of the slate with a finer abrasive, and scrubbing the smoothed surface of the slate with an abrasive detergent paste.

5. A method of renovating slate blackboards having a rotted or scratched surface comprising the steps of grinding off the old surface to a depth which will remove all deteriorated slate with sandpaper carrying grit ranging between number 24 grit and number 36 grit, smoothing the ground surface with a sandpaper carrying grit ranging between number 160 grit and number 200 grit, scrubbing the smoother surface with a paste comprised of pumice powder, soap, and water, and washing the paste from the scrubbed surface with water.

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