

UNITED STATES PATENT OFFICE

2,016,289

CLEANING AND SCOURING MATERIAL

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No Drawing. Application February 17, 1928,
Serial No. 255,195. Renewed January 30, 1935

3 Claims. (Cl. 87—5)

The high silica content of rice hulls is known and it has been proposed to make use of such silica as a detergent agent. Usually this has been done by prior incineration of the hulls to make the silica available as such. It has also been proposed to use ground husks of rice for the polishing of metals and to employ bran mixed with sand, saw-dust, mineral oil and other materials as abrasives, detergents and sweeping compounds.

Rice hulls which have been detached from the grain consist of an average of 42% of fibrous substance which itself contains a natural lubricant of about 1% fatty substance and approximately 19% of almost pure silica in the form of minute sharp crystals, intermixed with and interwoven with the fibrous matter in the natural state of the material. They may be likened to miniature sheets of abrasive paper, such as sand paper or crocus cloth.

That rice hulls have abrasive and polishing properties is known as explained above. But they have not become successfully practicable and popular for the reason that they so quickly and so completely disintegrate. This is due to the fact that the fibrous constituent is dry, brittle and easily breaks into minute particles, thus becoming ineffective.

I have discovered that this serious physical defect may be overcome by treating the fibrous or cellulose constituents of the rice hulls so that they are toughened, will therefore disintegrate less readily and are more suitable for the purposes set forth. By "toughening", I mean causing them to have the property of flexibility without brittleness; the capability of yielding to a bending force without breaking.

To secure this desirable result, I impregnate the fibrous constituents of the hulls with a toughening agent. Hydrocarbon oil, glycerine or other fatty substances that will permeate the cellulose and have the toughening properties are employed. Impregnation is best accomplished by spraying the oil on to hulls while in motion through a suitable conveyor. I have found that when so

applied from two to three percent by weight of oil will accomplish what will require ten to fifteen percent by merely intermixing the oil with the hulls. A relatively small amount sprayed will produce the desirable pliability or toughness of the cellulose matter. The hulls in dry condition are preferably so treated because their power of absorption is great. Furthermore I have found that an excess of oil serves no useful purpose.

The treatment may be applied to the hulls in the form they have when detached from the grain. Preferably however, the hulls are first ground to a predetermined mesh, say one millimeter, thereby not only making them uniform in size, but giving them a more nearly flat, flaky form, so that the surfaces are made better available than the rounded contour of the natural hull section.

The treated material may, if desired, be dyed or otherwise colored to give it a distinctive or more attractive appearance and packages in any desired manner.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim, is:—

1. A cleaning and scouring composition comprising rice hulls and a toughening agent of the group consisting of hydrocarbon oil and glycerine impregnating the cellulose constituents of said rice hulls.

2. A cleaning and scouring composition comprising rice hulls and a hydrocarbon oil impregnating the cellulose constituents of said rice hulls.

3. A cleaning and scouring composition comprising rice hulls and glycerine impregnating the cellulose constituents of said rice hulls.

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