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GRANULAR COATED ARTICLES AND METHOD OF MAKING THE SAME

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Fig. 1.

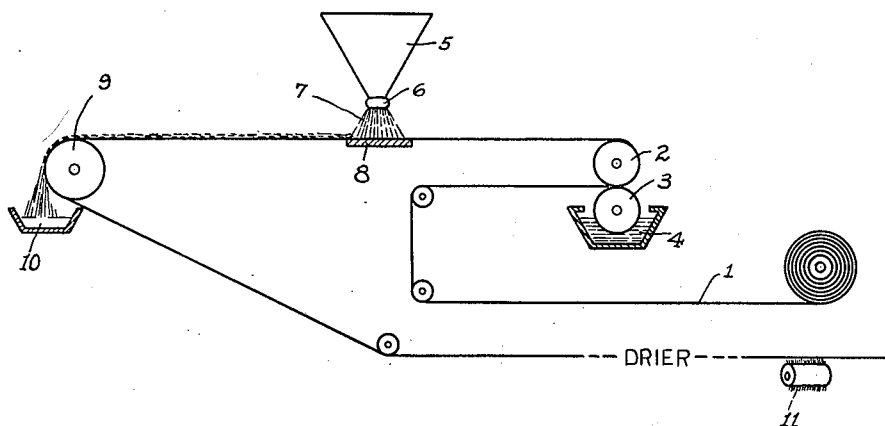
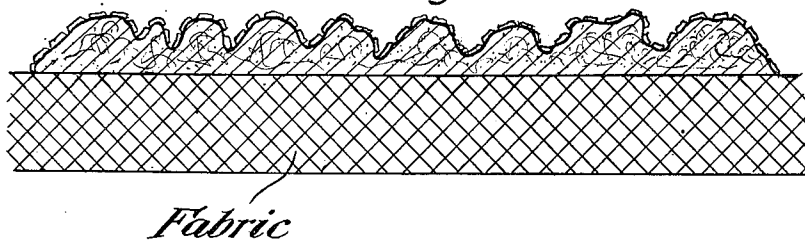


Fig. 2.



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GRANULAR COATED ARTICLE AND METHOD
OF MAKING THE SAME

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2 Claims. (Cl. 51—278)

This invention relates to granular coated webs, and to a new and improved method of making the same.

One of the objects of the present invention is the provision of a granular coated web with a coating of unctuous material thereon.

Another object of the invention is the provision of a method of coating the web with granules and applying thereto a coating of unctuous material, wherein the process of applying the coating of unctuous material is performed in a simple, efficient and economical manner.

Other and further objects and advantages of my invention will appear from the following description and drawing, wherein:

Figure 1 is a diagrammatic elevational view of the apparatus for carrying out my invention in the preferred manner, and

Figure 2 is an enlarged view of an abrasive coated fabric with unctuous material applied to the top surface thereof.

As shown in Fig. 1, a web 1 of paper, cloth or the like, having been first coated in the usual and well-known manner with adhesive such as glue, varnish, or the like and abrasive granules, such as silicon carbide, emery or the like, is passed between a pair of rollers 2 and 3. The latter roller 3 carries a thin film of sizing material, which is adhesive in character and may be a cellulosic lacquer such as nitrocellulose; a solution of synthetic resin as for example, Redmanol; glue, or the like, from the receptacle 4 onto the granular coated face of the web. The granular coated web with its sized surface passes from the rollers, and while the sizing coat is in a wet adhesive condition, it is passed over a supporting plate 8 and beneath a hopper 5 containing dry particles of an unctuous material. If the sizing coat has dried prior to the application of the unctuous material, it can be softened by heat, a solvent, etc. As the unctuous material I prefer to use mica, graphite, and talc which are flaky in character, although any material which has unctuous properties may be employed. The plate 8 serves to support the web 1 during the application of the unctuous material to the web, the unctuous material being caused to drop by gravity from the hopper 5.

The flow of the flaky particles of unctuous material from the hopper 5 is controlled by feed control means 6, and as heavy or as light a stream of particles can be applied as may be desired, although I prefer to apply an excess supply of the flakes to the web in order that the weight of this surplus material will effectively force the flakes immediately on top of the sizing coating

into intimate contact therewith, and will hold them firmly on the sizing coating in such intimate contact until it has completely set. Furthermore, this supply of excess material accomplishes the desired result of having the flakes flat upon the sizing coating with all edges adhering thereto, as well as providing that the flakes will be forced down between the grains and to the bases thereof so that the sides of the grain will be entirely covered. The same result can be obtained in other ways, for example by means of rollers.

After the unctuous material has been thus applied, the web is passed over roller 9 where the free excess flakes are allowed to fall from the web into a receptacle 10. Then the web is passed to a drier, not shown, where it is dried according to well-known plant practice, and thereafter it is subjected to a brushing action by means of a brush 11 or the like to remove any partially adhering flakes.

The product thus produced presents a thin flake-like adherent surface of unctuous material which, by reason of its broken contour, does not detract from the desired flexibility of the web, and yet because of the excess supply of these minute flakes, appears to be continuous. The unctuous material used is about 200 mesh and although made up of minute particles or flakes, the surface presented is exceptionally smooth and uniform. Such uniformity and smoothness is secured by reason of the application of the flakes under pressure and, as shown in the enlarged view of Fig. 2, all surfaces of the flakes lie flat upon the sides and tops of the granules.

During operation of this coated web against the work surface, the flaky particles on the immediate tips of the granules are detached therefrom in a manner similar to the detachment of the sizing coating therefrom which is well known in the art, to present a sharp working point to the material to be abraded. The thin adherent film of unctuous material applied upon the sides of the granules, as well as between them at the bases thereof, does not act as a filler in the interstices between the grain and ample space is provided for clearance of the cuttings from the work, and because of the glazed or slippery nature of the unctuous material coated thereon, these particles of material being abraded, which are received in the interstices between the grains, do not build up in these interstices because they can not adhere, and they therefore slide off of the web almost instantaneously.

Such a web is particularly efficacious in the grinding of soft woods, soft metals, leathers, var-

nished woods, resinous woods, and the surfacing of lacquers and the like and also for the grinding, finishing and polishing of different types of steel either in sheet or strip form. By unctuous material I mean a material which when coated on the abrasive paper causes the abraded particles (under operating condition) to adhere less to such coated paper than to uncoated paper, thereby preventing the abraded particles filling up the interstices between the abrasive particles. These types of material to be abraded, because of their inherent adhering properties, readily adhere to ordinary granular coated webs, and thereby load up quickly, destroying the efficiency of the web in operation and prematurely deteriorating the web.

For example, in the grinding of soft woods, such as pine, with the ordinary granular coated webs, the cuttings are fine and fluffy and any sharp edge or point on the granule will readily hold the cuttings, causing them to rapidly build up between the grains. The provision of a coating which is exceptionally smooth and to which such cuttings can not adhere overcomes this disadvantage which is common to the ordinary granular coated webs.

Varnished woods can also be polished and ground more speedily and more economically with this improved type of granular coated paper inasmuch as the prevention of building up of the cuttings therein, which are very gummy,

sticky and hard to clear, enables a medium close coat of granules upon the web as contrasted to the very open coats now used in this type of work. The provision of a closer coat of granules accomplishes an unusually fine finish on the article ground.

It is not intended that the scope of my invention shall be limited, but shall be commensurate with the spirit of the appended claims, which cover grinding, polishing, finishing, or other forms of abrading known in the art. It is also understood that one or both sides of the web can be coated.

I claim:

1. A new article of manufacture comprising a web having a coating of granular abrasive material adhesively attached to a surface thereof, a sizing coating on said granular abrasive material, and particles of an unctuous material such as mica, talc or graphite held by said sizing coating whereby the granular abrasive material is prevented from retaining abraded particles.

2. A new article of manufacture comprising a web having a coating of granular abrasive material adhesively attached to a surface thereof, and having a coating of unctuous material such as mica, talc or graphite adhesively attached to the abrading surface thereof, whereby the abrading surface is prevented from retaining abraded particles.

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