Feb. 19, 1946. L. K. RIMER 2,395,068

CLEANSING DEVICE

Filed Oct. 26, 1942

Fig. 1

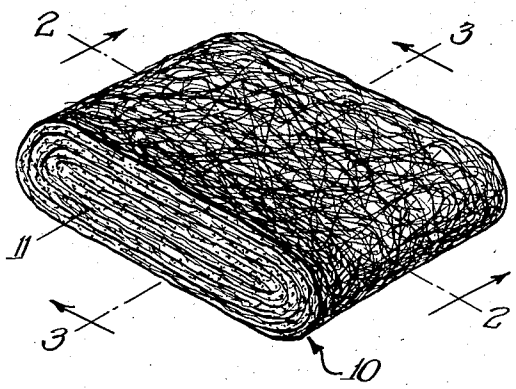


Fig. 2

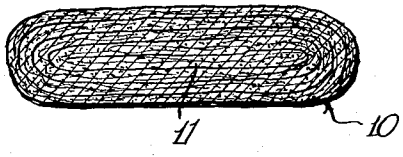
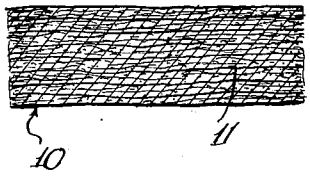


Fig. 3



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CLEANSING DEVICE

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15 Claims. (Cl. 51—185)

The present invention relates to improvements in detergent devices. More particularly, it pertains to improvements in cleaning and scouring devices consisting of a fibrous mass of material in the form of a novel type of pad or brush impregnated with a suitable detergent having correlated improvements and discoveries whereby the utility of such a device is considerably enhanced.

Conventional scouring and cleansing devices consisting of a mass of steel wool formed into pads with and without soap dispersed therein have met with considerable success. Such pads inherently have scouring and abrasive characteristics provided by the steel itself and in addition thereto combine these characteristics with additional cleansing materials, such as the soap. However, such pads also have certain disadvantages in addition to the cost and availability factors which are involved, for example, the natural tendency of steel to rust. This condition may be remedied by a rust preventive process of treatment, but today such treatment is too expensive, if not wholly unavailable due to prevailing conditions. The abrasive characteristics of steel wool pads are such that very often these pads are impractical for use in cleansing certain types of delicate enamel ware and porcelain as well as highly glazed or painted surfaces because of a tendency to develop scratch and other telltale marks on such articles.

Generally, therefore, it is an object of the present invention to overcome these as well as other difficulties and disadvantages and to provide a cleansing pad or brush which is simple, yet sturdy and durable of construction, and which also is economic of manufacture as well as of distribution.

A principal object of the present invention is the provision of such a device as herein described which can be made from a readily available source of material and in such a form that it is susceptible to interstitial as well as surface impregnation by suitable detergents to lend cleansing as well as abrasive characteristics thereto and which has these characteristics on a par with conventional pads as well as other advantageous characteristics such as longer life, freedom from telltale residues of rust and oxides and which is suitable for more comprehensive use for articles which heretofore could not readily be cleaned with conventional scouring devices without fear of scratching, or otherwise marring their surfaces.

More specifically, it is an object of the present invention to provide such a cleansing pad or the like made from a mass of fibrous materials such as, for example, Tampico fiber, in the form of a pad or brush in which said mass is impregnated with a suitable resin binder so that the pad will maintain its shape through long periods of use as well as impregnating the pad with a detergent consisting of a suitable soap and abrasive material bound in association with such a resin binder.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of components which will be exemplified in the product hereinafter described, the several steps and the relation of one or more of such steps with respect to each of the others, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and the objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view illustrating a preferred form of pad or brush;

Fig. 2 is a transverse sectional view taken along the lines 2—2 of Fig. 1 and looking in the direction of the arrows; and

Fig. 3 is a transverse sectional view taken along the lines 3—3 of Fig. 1 and looking in the direction of the arrows.

Referring more particularly to the drawing, there is indicated generally at 10 a pad of material preferably made of a vegetable material such as, for example, Tampico fiber, or hemp. Such material has been chosen because it is tough, resilient, capable of being worked, formed and readily handled and also because of the fact that it is readily obtainable in abundance. Any other similar material having these characteristics may be chosen for use in this connection.

In manufacturing such a pad or brush in accordance with the principles of the present invention a process is followed whereby the material, usually obtained in bales, is subjected to a cleaning process. Preferably such material is first given an air suction cleaning treatment followed by a dewaxing treatment with, for example, acetic acid. Thereafter the multi-strands of fiber making up the mass are separated to divide the long from the short fibers. After drying, suitable masses of the material are carded or combed into sheets to form webs of a desired width and length. These webs subsequently are

wound around a mandrel into tubular formation so that preferably, when removed from the mandrel and squeezed together or flattened into a shape which each ultimately attains, a plurality of layers 11 are formed.

Following a further drying operation to remove all traces of the cleansing agents these tubes are dipped in a binder material. Preferably, this binder consists of any suitable type of resin which is odorless and which will retain its plastic characteristics. This resin should also be water-insoluble, soap and alkali proof, as well as quick-curing and drying. Examples of such resins are cellulose acetate, polyvinyl acetates, etc., or any other resin having similar characteristics may be used.

After the tubes have thus been treated they are next subjected to impregnation with a material having the proper kind of abrasive characteristics. Such an abrasive may consist of pumice stone, so-called rotten stone, fuller's earth, or any other similar suitable material. This may be sprinkled or sprayed on the tube and if a deep impregnation is desired a number of such tubes may be tumbled in a suitable rotating drum containing the abrasive so that a deeper penetration is obtained. In order to avoid serious damaging or scratching characteristics, such as those accompanying steel wool scouring devices, it is desirable that the abrasive material be of a highly pulverized character except in those instances where it is intended to manufacture pads where heavier abrasive characteristics are necessary. The abrasive material may be applied while the resin is still in a tacky condition so that the same will be trapped in a manner that during subsequent use the abrasive is not readily disassociated from the interstices of the fibrous mass or loosened from the surface cohesion which obtains. The abrasive should be added at a time when the resin is in a condition to develop its greatest tenacity in holding such abrasive particles in place.

After the abrasive application the tubes are again dried and cured over a suitable period of time and then subjected to trimming operations in any convenient manner so that extending fibers and loose particles may be removed from the tube so as to give them proper appearance.

Thereafter the tubes are subjected to a soap impregnation operation and this may be done either by completely immersing the tubes or injecting the soap between layers so formed. It is also contemplated that this soap may be mixed with the abrasive material and a joint application of both materials made to the tubes to impregnate the same. It is further contemplated that the tubes, after separate or simultaneous application of abrasive and soap materials, can again be given a second resin treatment with the same or a similar resin. This may be done in those instances where strong binding characteristics are desired and where circumstances warrant such procedure. Following the final application of the secondary resin or immediately after the saponaceous material has been applied as above set forth, the tubes are again subjected to a drying treatment by passing the same through air and chilling them. This method is used where it is desired to have the soap set or freeze when the type of soap used is of a gel-like consistency wherein a heat treatment is necessary to bring about an increased fluidity in applying the soap to the tubes.

The tubes thus treated are then ready for cutting into suitable lengths such as those shown in the drawing or in any other suitable lengths as desired and following this operation the resulting pads are ready for packing and distribution.

With respect to the nature of the composition with which such pads are impregnated it should be noted that the best results are obtained when the amounts of impregnating materials fall within certain approximate ranges. For example, the average weight of a standard size pad is in the neighborhood of 3 grams. In considering the amounts of materials with which such a pad is impregnated, a suitable range would consist of resin 2 to 5, soap 2 to 6, and abrasive 1 to 4. These figures give approximate ranges of these materials setting forth the percentage composition by weight with respect to the weight of the pad.

A pad made in accordance with the principles of the present invention has many advantages. There is no possibility of rusting or oxidation and hence such a pad lasts longer. In addition to this, there are more comprehensive uses available for this type of pad. For example, porcelain, enamel ware, bath ware, tile, delicately painted surfaces, etc., may now be cleansed with such a product. The pad does not leave unsightly telltale marks of rust and oxides as does the steel wool pads, does not splinter, retains its size and shape and is made of a readily available material.

It will thus be seen that the objects hereinbefore set forth may readily and efficiently be attained and since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A cleansing device, comprising in combination, a mass of non-metallic fibrous bristle material consisting of Tampico fibre in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent, comprising soap and an abrasive powder, dispersed throughout said mass and bound in surface association with individual strands of said fibrous material.

2. A cleansing device, comprising in combination, a mass of fibrous vegetable bristle material in the form of a brush provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder holding said mass in said form, and a detergent, comprising soap and an abrasive powder, dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

3. A cleansing device, comprising in combination, a multi-strand mass of non-metallic fibrous bristle material in the form of a pad provided by a single continuous sheet of said material wound

upon itself into a plurality of layers, said mass being impregnated with a water insoluble resin binder, said binder being soap and alkali resistant and flexible, and a detergent, comprising soap and an abrasive powder, dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, and said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

4. A cleansing device, comprising in combination, a mass of bristly fibrous organic material consisting of hemp in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-repellent resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

5. A device of the class described, comprising in combination, a mass of organic fibrous bristle material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap and abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by a secondary resinous binder having characteristics similar to said first named binder, said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

6. A device of the class described, comprising in combination, a multi-strand mass of non-metallic fibrous bristle material in the form of a pad, said pad consisting of a web of said material folded into a plurality of layers, said mass being impregnated with a water-insoluble resin binder, to hold said layers in said form, and a detergent, comprising soap and an abrasive powder dispersed throughout said mass and bound in surface contact with individual strands of said fibrous material and with adjacent layers thereof, said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

7. An article of manufacture, which comprises in combination, a mass of bristly fibrous organic material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap and abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by a secondary resinous binder having characteristics similar to said first named binder, said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

8. An article of manufacture, which comprises in combination, a mass of non-metallic fibrous bristle material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-repellant resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap and abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by said resinous binder, said resin having a percentage composition by weight of approximately 66 to 166 per cent with respect to the weight of the pad, and said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

9. An article of manufacture, which comprises in combination, a mass of bristly fibrous organic material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap and abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by said resinous binder, said soap having a percentage composition by weight of approximately 66 to 200 per cent with respect to the weight of the pad, and said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

10. An article of manufacture, which comprises in combination, a mass of non-metallic fibrous bristle material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap and abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by said resinous binder, said abrasive having a percentage composition by weight of approximately 33 to 113 per cent with respect to the weight of the pad, and said pad remaining substantially rigid after wetting and during use and maintaining its shape upon drying.

11. An article of manufacture, which comprises in combination, a mass of bristly fibrous organic material in the form of a pad provided by a single continuous sheet of said material wound upon itself into a plurality of layers, said mass being impregnated with a water-insoluble resin binder to hold said mass in said form, and a detergent dispersed throughout said mass and bound in surface association with individual strands of said fibrous material, said detergent consisting of a soap and an abrasive powder, and said soap abrasive being bound in impregnated relationship with respect to said mass and said individual fibrous strands by a resinous binder, the individual weights of said resin, soap and abrasive with respect to the weight of the pad being approximately 66 to 166, 66 to 200, and 33 to 113 per cent by weight of said pad respectively, and said pad remaining substantially rigid after wetting and

during use and maintaining its shape upon drying.

12. A method of making an article of manufacture of the class described which comprises cleansing a sheet of a vegetable fiber and brushing the same around a mandrel to form a tube of a plurality of layers, dipping said tubular formation into a suitable insoluble resin binder resistant to soap and alkali, subjecting said resin treated tube to an abrasive impregnation treatment and drying the same, impregnating said resulting tubular formation with soap and further drying the same, and cutting said tubular formation into suitable pad-like sizes adapted for use as detergent devices.

13. As an article of manufacture, a scouring and cleansing device of the class described comprising matted hemp fibres formed into a pad-like unit, said pad being impregnated with a mixture containing a saponaceous substance, a resinous material and an abrasive powder.

14. As an article of manufacture, a scouring and cleansing device of the class described comprising matted hemp fibers formed into a pad-like unit, said pad being impregnated with a mixture containing soap, a resinous material and scouring powder.

15. As an article of manufacture, a scouring and cleansing device of the class described comprising matted hemp fibers formed into a pad-like unit, said pad being impregnated with a mixture containing soap, a resinous material and pumice stone.

LEWIS K. RIMER.