Jan. 4, 1966

E P. CHARLAP

3,226,753

DISPOSABLE CLEANING AID

Filed Jan. 9, 1963

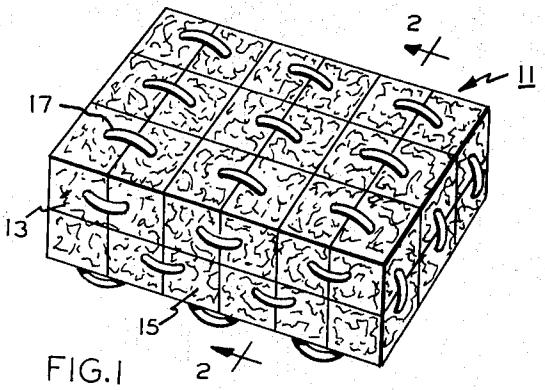


FIG. 1

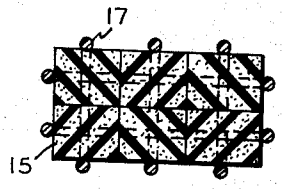


FIG. 2

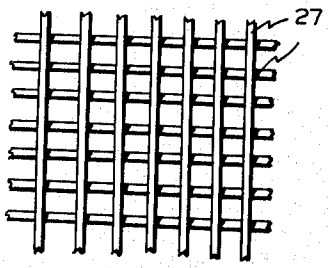


FIG. 5

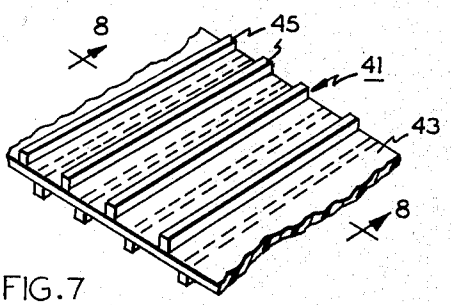


FIG. 7

FIG. 4

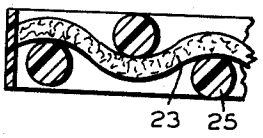
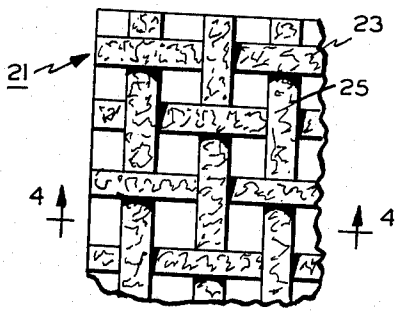


FIG. 3



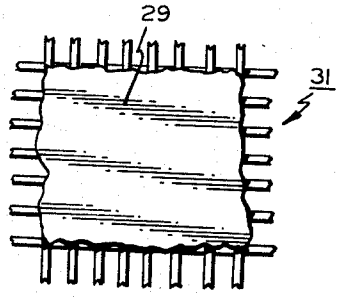


FIG. 6

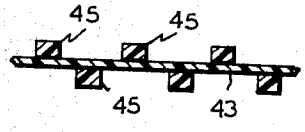


FIG. 8

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United States Patent Office 3,226,753 Patented Jan. 4, 1966

3,226,753

DISPOSABLE CLEANING AID

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Filed Jan. 9, 1963, Ser. No. 250,249
5 Claims. (Cl. 15—210)

The present invention relates to a novel cleaning article, pad or aid which is inexpensive and efficient in its purpose, yet readily disposable through the sanitary system of any household.

The cleaning aid of the present invention is characterized by a water-soluble material. It may consist of such a material impregnated with a detergent, or in fact may be comprised of one or more components, at least one of which is water soluble and either of which may be impregnated with a detergent and/or an abrasive.

In order that the cleaning aid may be readily disposable through the home facilities, it must at least be water-soluble in part, to an extent that its pad-like or bulky mass is alterable in form sufficiently to be accommodated by the facility. Such alteration may proceed along the lines of a disintegration or break-up, piece by piece, or as a partial separation or solubilization to the extent that the original article configuration or mass is substantially diminished along at least one of its major dimensions to permit the new configuration or pieces or parts thereof to pass through the drainage pipes of the disposal system.

In one embodiment of the invention, the cleaning aid is comprised of at least a body component and a connecting component, one or both of which are water soluble. Such an aid admits of the supplemental use of a detergent, scouring powder or the like in cleansing. Alternatively, either component may be impregnated with a cleansing supplement. In the event one component is more quickly soluble than the other it is preferable that the component which is primarily responsible for maintaining the original configuration of the article dissolve more readily in order that the cleansing aid is more quickly disposable. Similarly, when one of the components is not soluble, it is desirable that the soluble component be the one which is primarily responsible for maintaining the original article configuration.

The cleaning aid of the foregoing description is particularly adapted, for example, for the housewife in cleaning pots, pans, bath tubs, or other implements which may be at an elevated temperature and thereafter is disposable in a cold-water facility. It will also be appreciated that the invention may employ one or more components having inverse solubility whereby objects with relatively low temperatures may be readily cleaned and disposal may be accomplished through a hot water facility. Moreover, an object such as a bath tub, at an elevated temperature, could be cleaned; with the component soluble under elevated temperatures dissolving during the cleansing action to leave any residue readily disposable through the sanitary facility.

The invention will be more particularly described with respect to certain specific embodiments thereof, but in each instance a water-soluble material such as an elastomer, suitable resin or polymer, is employed in the cleansing aid. Such a material may primarily constitute the article, or either or both its body or connecting component. Specific examples of water-soluble materials, water-insoluble materials, and some information with respect to the rates of solubility will be presented in connection with the embodiments hereinafter to be described.

With the foregoing in mind, among the objects of the invention its the provision of a disposable cleaning aid.

A further object is the provision of such an aid which is inexpensive to fabricate yet susceptible to employment with an incorporated detergent or a detergent supplemental thereto.

A still further object of the invention is the provision of a disposable cleaning aid characterized by water-soluble material wherein the article is capable of substantial reduction in at least one dimension through exposure to water.

A detailed description of the invention as it appears in several embodiments will now be presented in connection with the accompanying drawing wherein:

FIG. 1 is a view in perspective of one form of the invention;

FIG. 2 is a view in section of the embodiment of FIG. 1 taken along the plane **2—2** and looking in the direction of the arrows assigned thereto;

FIG. 3 is an enlarged fragmentary view, in plan, of a further aid in accordance with the invention;

FIG. 4 is a view in cross-section of the structure of FIG. 3, as seen along the plane **4—4** thereof;

FIG. 5 is a plan view of one component of a particular embodiment of the invention;

FIG. 6 is a plan view of such embodiment incorporating a second component thereof;

FIG. 7 is a view in perspective of a portion of a further embodiment of the invention, and

FIG. 8 is a cross-sectional view of the structure of FIG. 7 as seen along the plane **8—8**.

In FIG. 1 a cleaning pad or aid is generally shown at **11** and is comprised of a plurality of cubes or blocks, such as the pieces **13** and **15**.

The pad or cleaning aid is held together by the elongated thread-like connector **17**, which pierces each piece and sews the blocks together. An ordinary hand size pad may include, by way of example, 244 blocks tightly sewn, or in fact connected together by adhesive, to form the pad **11**. In either event, preferably the connective material, either the thread **17** or adhesive (not shown) is water soluble or at least more readily water soluble than the blocks **13** and **15**.

Obviously, in the embodiments of FIGS. 1 and 2, if impregnation by either detergent or an abrasive, or both, of the pad **11** is desired, such material will preferably appear in the body building blocks **13** and **15**. The pad **11** may be gripped by the user and employed in a cleansing manner.

Depending upon the degree of solubility, the pad will maintain the configuration of FIG. 1 throughout the cleansing operation or for a period sufficient to justify its purpose. Thereafter, the connective material, such as the thread **17**, will dissolve to cause the pad **11** to lose its original configuration. It will simply consist of a plurality of disassociated blocks, such as block **13**. If the thread **17** or its alternative adhesive (not shown) is readily soluble, this disintegration may occur during the cleaning operation in which event the user simply disposes of the conglomerate pieces by flushing them through the sanitary facilities. Otherwise, once the user has concluded the cleansing operation, the pad may be discarded into the sanitary facility to permit dissolving of the connective thread **17** or its counterpart to provide a readily disposable conglomeration.

Suitable materials for the pad **11** of FIGS. 1 and 2 may comprise cellulose sponge as the blocks **13**, **15**, etc. with the thread material **17** being, for example, comprised of polyvinyl alcohol or carboxyethyl cellulose. Such a construction provides a relatively insoluble body material in the form of the blocks **13** and a relatively soluble connective thread **17** therefor. Any ordinary detergent or abrastive normally useful in cleaning pads may be employed in the structure.

Other examples of suitable materials for use in connection with the pad of FIGS. 1 and 2 include water-

soluble connecting materials selectable from the following list:

Cellulose acetate
Polyvinyl methyl ether
Polyamide
Polyacrylic acids and their salts
Ethyl cellulose
Carboxymethyl dextrin
Dextrin
Polyvinvyl pyrrolidone

The foregoing list is by way of example only, and it is to be understood that many other suitable water-soluble materials may readily be employed, following the teachings of this invention.

Other than the celluluose sponge materials the embodiment of FIGS. 1 and 2 may be fabricated from paper treated or impregnated with urea formaldehyde, melamine formaldehyde, or suitable resins and the like to constitute a water-insoluble body.

An alternative embodiment of the invention is shown in FIGS. 3 and 4 and constitutes a pad **21** basically comprising warf components **23** and woof components **25**, either or both which may be water soluble, of the same or different degrees and either or both of which may be impregnated by a suitable detergent or abrasive or combination thereof. In this embodiment, the water insoluble strands may comprise hemp or glass fibers or threads, rayon or nylon fibers or threads (and most synthetic fibers in general), or even strands of treated paper. The soluble strands may comprise one or more of the materials listed. Such a cleaning aid **21** has more applicability in scouring than the cleaning aid **11** of FIG. 1 which is more absorbent and consequently softer in its cleansing function.

It should be pointed out that a material such as polyvinyl methyl ether exhibits inverse solubility and, as such, is useful as a component of a pad in accordance with this invention. For example, if it constituted the strands **23** of the pad **21**, then the pads would be useful in cleansing in hot water and suitable for ready disposal in a cold-water facility.

In contrast to the foregoing embodiments, the forms of the invention exhibited in FIGS. 5 and 6 and also FIGS 7 and 8 may perform cleansing functions of a caliber intermediate to those above discussed. For example, in FIG. 5 a plurality of threads, fibers or hairs **27** is laid down in crossed or even haphazard arrangement but, in any event, they simply constitute a base or foundation. The fibers, threads or hairs **27** are then impregnated by a film or sheet **29** of preferably a water-soluble elastomer, resin or polymer to form the pad **31**. Naturally, the pad is trimmed to give it a suitable commercial appearance and, as in the case of the other embodiments, may or may not include a detergent and/or abrasive material.

In this embodiment, it is more desirable that the film or sheet **29** be the water-soluble material or at least the more readily soluble material in the pad **31** because the film defines the dimensions of the film which must be diminished in order to permit ready disposal of the pad. It is obvious, of course, that the threads **27**, once disassociated, will readily flush down the drain.

In the event it is desirable to fabricate the pad **31** of

all soluble material or components, it is useful to form the film **29** from a more readily soluble material, such as polyvinyl alcohol with the threads **27** being, for example, carboxyethyl cellulose, thereby facilitating disposal through more rapid dissolving of the binder film **29**, but commensurate with a useful life of several minutes.

The embodiment of the invention illustrated in FIGS. 7 and 8 permits a corrugated type cleansing aid or pad **41** which generally consists of a film **43** having secured thereto a plurality of ribs or the like **45**. Here again, the largest dimensions of the pad **41** are maintained by the film **43** and therefore it is desirable that the film comprises the soluble or at least more soluble material of the pad **41**. The ribs **45** may be incorporated into the pad **41** as film **43** is set or they be incorporated thereon by a suitable adhesive or binder. In any event, once the film **43** is dissolved, or partially so, the ribs **45** will provide no disposal problem. Suitable materials for these components may be selected from those previously presented herein.

While the foregoing embodiments serve to illustrate the invention, nevertheless the principles taught herein are susceptive to other and further embodiments, e.g., it will readily occur to one skilled in the art that tubes (similar to straws or the like) could be held together with threads or fibers in mat-like configuration to provide a cleansing aid of the aforementioned type. For this reason, it is intended that the invention not be limited to the specific embodiments herein set forth, but rather by the scope of the appended claims wherein what is claimed is:

1. A disposable cleansing aid comprising in combination a body component and a connecting component, said connecting component initially holding said body component together, at least one of said components being more water soluble in cold water than in hot water.

2. A disposable cleansing aid comprising a pad including at least two components; a body material of blocks comprising one of said components; and a thread-like connecting material connecting said blocks together comprising another of said components; said another of said materials being more readily soluble than the other.

3. A disposable cleansing aid comprising a pad constituted of at least two components; a body material comprising one of said components; and a connecting material comprising another of said components, one of said materials characterized by inverse solubility, being more soluble to unheated water than heated water.

4. A disposable cleansing aid comprising in combination a body component and connecting component, said connecting component being thread-like, soluble and serving to connect said body component so as to hold it together initially.

5. The cleansing aid of claim **1** wherein said one of said components is polyvinyl methyl ether.

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