Jan. 15, 1963 I. W. COX 3,072,952

SCOURING PAD

Filed Oct. 17, 1960

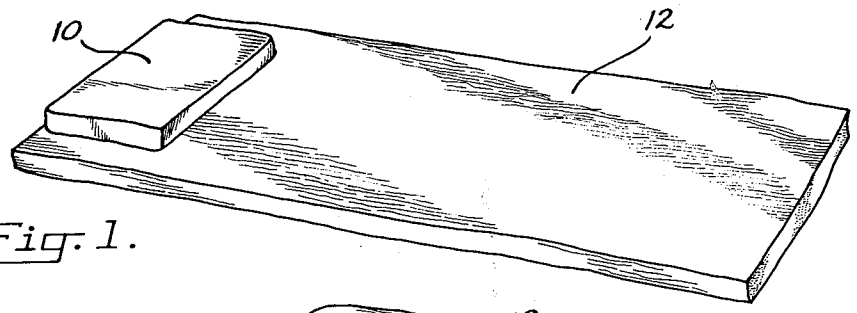


Fig. 1.

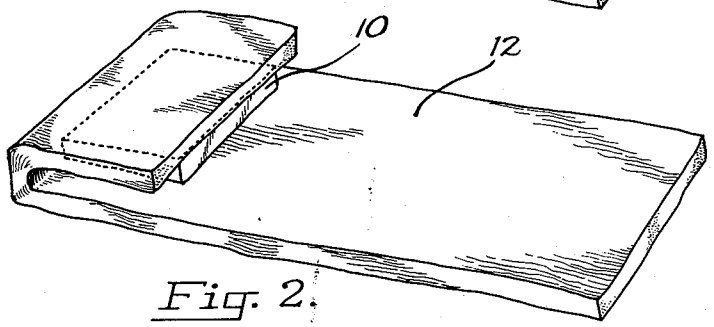


Fig. 2.

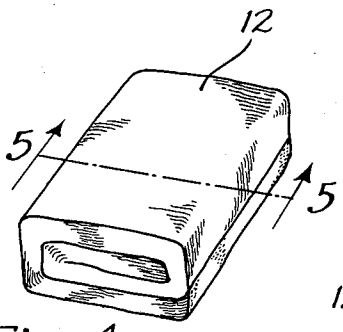


Fig. 4.

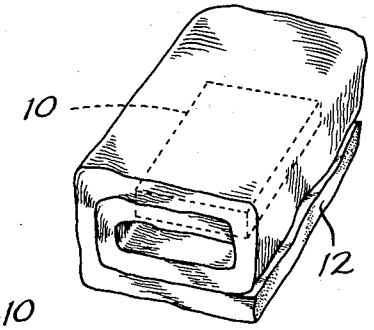


Fig. 3.

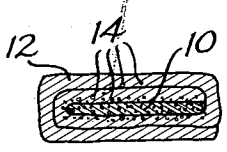


Fig. 5.

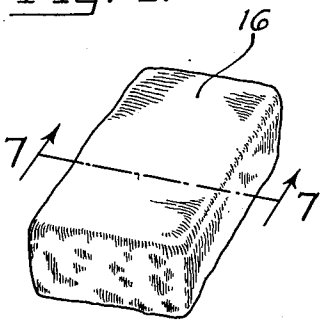


Fig. 6.

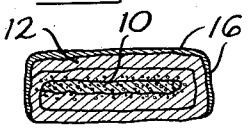


Fig. 7.

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SCOURING PAD

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This invention relates to scouring pads, and more particularly to a novel souring pad of improved efficiency and durability.

Scouring pads of the type which comprises a body of steel wool or other fibrous material impregnated with soap, have long been available on the commercial market. Although pads of this type are quite popular, they have not been completely satisfactory, particularly in the following respects: The steel wool filaments bend and break much too readily, and thus the useful life of the pad is not properly proportioned to its cost to render it economically attractive to the majority of housewives. The unsupported body of steel wool quickly loses its shape and thus becomes inconvenient to hold and ineffi- cient in its cleansing operation. The unsupported body of steel wool rapidly releases the impregnated soap; most often to such an extent that the soap content is gone long before the effective life of the steel wool. This not only diminishes the scouring efficiency of the pad, but also results in rusting of the steel wool. The unsupported steel wool also presents a multitude of sharp points of broken strands which penetrate the fingers of the user, thus rendering the pad uncomfortable and hazardous to use.

It is a principal object of the present invention to provide a scouring pad in which the foregoing objections are eliminated or minimized, thus providing a scouring pad which is much more efficient and longer lasting than scouring pads provided heretofore.

Another important object of this invention is the provision of a method by which to produce the improved scouring pad of this invention.

A further important object of this invention is the provision of a scouring pad which not only exhibits improved efficiency and useful life, but also is of simplified construction for economical manufacture.

The foregoing and other objects and advantages of this invention will appear from the following detailed description, taken in connection with the accompanying drawing in which:

FIGS. 1, 2, 3 and 4 are perspective views showing the sequential steps involved in one method of making a scouring pad in accordance with the present invention;

FIG. 5 is a sectional view taken along the line 5—5 in FIG. 4 and showing the composite construction of a scouring pad embodying the features of this invention;

FIG. 6 is a perspective view showing a modified form of scouring pad embodying features of this invention; and

FIG. 7 is a sectional view taken along the line 7—7 in FIG. 6.

In its basic concept, the scouring pad of the present invention comprises a main body of steel wool or other fibrous material enclosing within it a supporting core composed essentially of a mixture of soap and granular vegetable material, with or without a quantity of granular mineral material. The general method by which the pad is produced involves the preparation of the core mixture, and imbedding into a pad of steel wool or other fibrous material a quantity of the core material in such manner that a portion of the core material provides a central firm support and the remaining portion of the core material is dispersed outwardly through the pad to support the fibrous filaments thereof.

As stated hereinbefore, the core comprises a mixture of soap and granular vegetable material. Any of the conventional soaps may be employed, and it is understood that the term soap is intended to include detergents as well. The granular vegetable material may be provided in the form of small pieces of wood, corn stalks, etc. Sawdust has been found to be completely satisfactory, and although the size of particles may vary over a substantial range, it is preferred to employ granular particles having a size ranging between 15 and 50 mesh. Unsuitable for the present invention are materials such as wood flour and others having a particle size which passes through standard screens of about one hundred mesh or more.

One primary function of the granular vegetable material is that of a vehicle which absorbs and carries the soap. If the soap normally is solid under atmospheric conditions, it is initially liquified, preferably by heating. In any even, the fluid soap and vehicle are mixed in proper proportions to provide a semi-solid, or paste-like consistency. A second primary function of the granular vegetable material is that of a support for the steel wool filaments, as explained more fully hereinafter.

In accordance with the method exemplified in the drawing, a quantity of the core mixture 10 is deposited upon a length of steel wool 12 or other fibrous material, adjacent one end thereof, as illustrated in FIG. 1. The core material may be formed in the shape of a ball of regular or irregular shape, or as a rectangular block, as illustrated, and in any event preferably is narrower than the width of the steel wool strip. The steel wool strip then is folded or rolled up lengthwise, as illustrated in FIGS. 2 and 3, to form a body which surrounds the core.

The folded body of steel wool and its enclosed core then is subjected to compressive pressure which functions to intermesh the fibrous strands of steel wool at the abutting folds, to prevent unfolding of the steel wool strip. This compressive pressure may be provided by a stamping press which serves additionally to cut or form the body to desired external shape.

During the pressing operation, a portion 14 of the still semi-solid core mixture is caused to permeate the surrounding steel wool, to an extent dependent in part upon the quantity of core material and upon the degree of compression of the surrounding body. The degree of outward penetration is not critical, although it is preferred that the penetration extend substantially to the outer surface of the pad in order to achieve maximum efficiency in use, as explained more fully hereinafter.

The compressed pad then is dried and packaged for shipment for ultimate purchase and use by the consumer. In this dried condition the core is hard and stiff, resembling a board.

When the scouring pad is to be used, it is placed in water, whereupon the soap is released from the outermost particles of carrier to serve its function of cleansing. The released soap also functions as a lubricant for the filaments of steel wool, thus enhancing the cutting operation which these filaments perform upon the utensil being cleaned. It is by proper proportioning of soap to vegetable particles that optimum results of cleansing are achieved. For example, if excess soap is employed, it tends to form a gum about the steel wool filaments and thus inhibits the desired cutting action. Too little soap will provide inadequate lubrication for the filaments, as well as insufficient cleansing agent.

The particles of granular material remain in place between the filaments of steel wool and, although softened to some degree, provide substantial support for the filaments. In this manner, the filaments of steel wool are supported against premature bending and breaking, with the result that each filament has a longer useful life.

As the filaments are worn down and broken away, the adjacent granular particles of the core also sluff away

to expose fresh filaments of steel wool. In addition, fresh soap is exposed for release to the water. However, penetration of the water to the center of the core is minimized, and thus this portion of the core serves as a firm inner board-like support to maintain proper shape to the pad for most efficient scouring action and maximum facility of handling.

It may be desirable to proportion the core mixture and surrounding steel wool body so that both become expended at substantially the same rate, although it is preferred to provide a larger proportion of core material to insure adequate support for the final traces of steel wool filaments. Those skilled in the art may readily establish the desired proportions by very simple tests.

In the preferred embodiment of the present invention, as illustrated in FIGS. 6 and 7, a portion of the outer surface of the pad is provided with a thin layer **16** of the core mixture, in order to cover the sharp points of broken strands of steel wool filaments and thus protect the fingers. In addition, the external coating affords additional support to the steel wool pad and also increases the soap content of the pad. This exterior coating may be applied to the top surface only of the pad, although it is preferred to cover the side surfaces as well, as illustrated in the drawing. This coating may be applied by such means as spraying, painting, pouring and vibrating, or dipping, preferably after the compressive step illustrated in FIG. 4.

It will be apparent that the effectiveness of a scouring pad is determined in part by the ability of the steel wool or other filaments to cut or shave the deposits on the utensil as well as the material of which the utensil is composed. It has been found that utensils which have been badly burned with greases or sugars may be cleaned and polished most effectively by incorporating into the core material **10** a proportion of granular metal or mineral particles having a hardness of at least six on Mohs' scale. The particle size of the hard granule may vary over a considerable range, it being preferred to employ particles within the range of 36 to 64 mesh. These hard particles are confined within the mass of particles of vegetable matter, and the latter serves to support these hard particles, much in the manner as the filaments of steel wool are supported, to enhance the cutting operation performed by the hard particles.

It has been found that scouring pads provided in accordance with the present invention are effective in cleansing utensins in less than half the time and with much less effort, as compared with conventional scouring pads of the steel wool-soap combination type. Moreover, the useful life of the scouring pads of this invention is found to be several times longer than conventional pads provided heretofore. Still further, since the granular vegetable material, such as sawdust, is extremely inexpensive, the pads of this invention are no more costly than the conventional pads aforesaid. Additionally, the scouring pads of this invention may be manufactured without modification of conventional equipment presently used

for the manufacture of the conventional pads, thus obviating the necessity of additional plant equipment.

Accordingly, it will be appreciated that the present invention provides a scouring pad, which, without additional cost to the consumer, provides greater cleansing efficiency with much less effort, whose useful life is increased many fold, and in which the possibility of metal filaments penetrating the fingers to the discomfort of the user, is reduced to a minimum.

It will be apparent to those skilled in the art that various changes may be made in the size and shape of the product, the proportions and types of components. For example, in practice the thickness of the steel wool strips **12** is much less and the number of folds around the core is much greater than illustrated in the drawing, the core preferably representing about one-third the total thickness of the pad. As another example, the core may be provided by injecting the semi-solid mixture into the center of a preformed steel wool pad, although the folding method described is preferred. These and other changes may be made without departing from the spirit of this invention and the scope of the appended claims.

Having now described my invention and the manner in which it may be used, what I claim as new and desire to secure by Letters Patent is:

1. A scouring pad comprising a body of fibrous scouring material enclosing a firm dried central core composed essentially of an initially semi-solid mixture of granular vegetable material and liquified soap, the dried core being characterized by remaining firm for the useful life of the fibrous scouring material.

2. The scouring pad of claim 1 wherein a portion of the core is disbursed through the body toward the outer surface thereof to support the filaments of the fibrous material.

3. The scouring pad of claim 1 including a coating on at least a portion of the outer surface of the body, the coating being composed essentially of a mixture of granular vegetable material and soap.

4. The scouring pad of claim 1 wherein the granular vegetable material is sawdust.

5. The scouring pad of claim 1 wherein the body is composed of steel wool and the granular vegetable material is sawdust.

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