Aug. 28, 1928. 1,682,117

C. FIELD

SOAPING AND CLEANING DEVICE

Filed Oct. 8, 1925

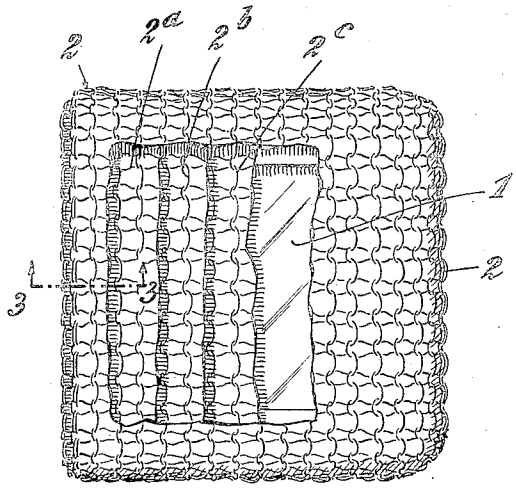



Fig. 1.

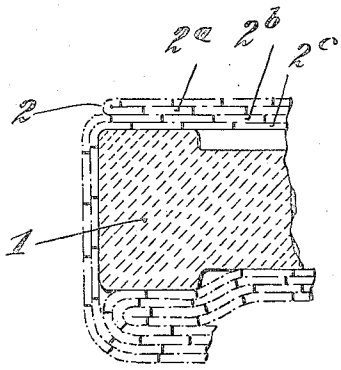



Fig. 3.

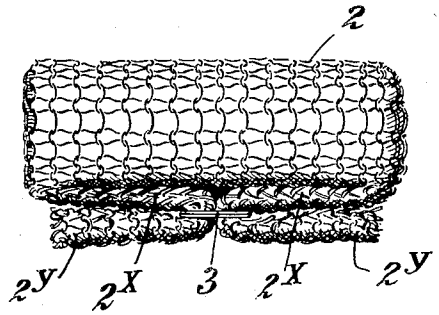



Fig. 2.

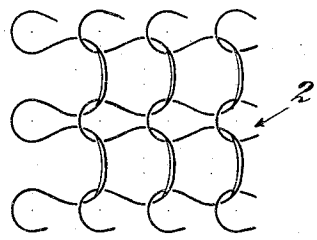



Fig. 4.

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Patented Aug. 28, 1928. 1,682,117

# UNITED STATES PATENT OFFICE.

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## SOAPING AND CLEANING DEVICE.

Application filed October 8, 1925. Serial No. 61,186.

My present invention is shown as embodied in a device particularly adapted for applying soap and water to clean or scrub floors or dishes or household utensils, particularly aluminum utensils and metal surfaces generally.

Properly cleaning such articles and surfaces, particularly kitchen utensils, usually involves removing considerable coatings of grease or other clinging or sticky materials. Removal of these is facilitated by soap and water, but direct rubbing of the soap on the grease and dirt is undesirable because it tends to contaminate, abrade and waste the soap, and I find that it is unnecessary provided the action of the soap and water is supplemented by mechanical scraping and scrubbing in accordance with my present invention.

Accordingly, I provide a cake of soap enclosed in a wrapper of metal fabric that is not readily clogged by the grease or dirt; that is adapted to afford reasonable protection for the soap while freely exposing it to the water for solution and sudsing; and that affords effective scraping and scrubbing means which does not score or scar the surface of the metal.

The above and other features of my invention will be more evident from the following description in connection with the accompanying drawings, in which

Fig. 1 is a face view of a cake of soap with knitted ribbon fabric wrapper, illustrating one form of the invention, layers of the fabric being broken away to show the cake of soap;

Fig. 2 is an edge view of the complete article;

Fig. 3 is a detail section on the line 3—3, Fig. 1;

Fig. 4 is an enlarged view showing one form of metal ribbon fabric that may be used.

As shown in the drawings, a cake of soap, 1, is enclosed in fabric, 2.

The fabric I prefer to use is a relatively fine mesh fabric of flexible metal ribbons preferably of non-ferrous relatively soft metals or alloys such as copper, aluminum or German silver. A desirable metal is an alloy much like that employed in ordinary tinsel.

While the weave may be widely varied, it will be evident that metal ribbons bent in the slidable loops required for stocking-knit fabric afford natural scraping edges that are not too harsh, combined with any desired size of mesh for protecting the soap and scrubbing the surface to be cleaned. The width of the ribbon may be, say, eight to twelve times its thicknesses and, say, 1/16 to 1/64 inch wide by, say, 1/500 to 1/100 inch thick.

The metal fabric envelope may be secured about the cake of soap in any desired way. A cheap way is to have the envelope of thin flexible copper or tinsel-like ribbons made on a stocking knitting machine. This or any other suitable fabric may be formed as a tube, the cake of soap inserted therein, the ends of the tube closed and folded over and secured together by wire or other suitable fastening means, and the whole flattened and formed to standard size in a suitable press. This has the advantage that one face of the pad has a large part of its effective working surface comprised of scraping ribbon which will be afforded by the enclosing fabric. The reverse or folded-over side is covered by so many thicknesses of ribbon fabric that it forms a soft cushion for the hand or a deep elastic pad for application to the surface to be cleaned; also the fingers of the user may be slipped into the pocket formed between the folded back ends and the body of the knitted tube, thereby affording a convenient means for holding the soap when in use.

In the present embodiment the fabric is in four layers, 2, $2^a$, $2^b$, $2^c$. Preferably the fabric is in the form of a tube much longer than the cake of soap. The soap is slipped into the tube, the free ends then being folded back against a face of the soap as at $2^x$, $2^x$, and after securing by wire or other suitable bond, 3, the free ends, $2^y$, $2^y$, are reversely bent toward the ends of the cake of soap and are preferably more or less crushed and flattened to form the completed article shown in Fig. 2.

Where there are multiple layers, they may be formed by telescoping four separate pieces

of the fabric or by telescoping back and forth successive portions of a single length. It will be evident, however, that while the tubular form is convenient, there are many other ways in which wrapping may be applied around and securely fastened upon the cake of soap.

The fabric used for the wrapper may be of any desired cross-section and the weave or knit of the fabric may be as indicated in Fig. 4. Here it consists of ribbons interengaged longitudinally of the fabric in slip loops. The ribbon loops may assume an infinite variety of positions under different tensions and pressures, in the different parts of the fabric, by reason of the loop structure in combination with the springiness and ribbon shape of the metal. A characteristic relation shown in Fig. 4 is where the fabric is not tightly stretched so that the elastic stiffness of the ribbon loops has an opportunity to permit the ribbons to assume a characteristic position more or less edgewise to the surface. This is of advantage for several reasons. It tends to present the scraping edges of the ribbon as edgewise as possible to the surface of the cake of soap and consequently in the best possible position for scraping the surface to be cleaned. This also causes the openings for flow of water through the fabric, to and from the soap, to be of maximum size for a given amount of ribbon, per unit area of the soap. There is opportunity for considerable elastic play or relative movement between the surface of the soap and the fabric, so that the inner surface of the fabric may be caused to have a variable rubbing and scraping action on the surface of the soap. For instance, when the device is used merely for sudsing water, rubbing the surface of the fabric by the hand will promote a very rapid solution of the soap and water.

Even when the knitted fabric is of quite fine mesh, the scraping edges are effective and the mesh is self cleansing, or at least is readily cleansed because of the freedom with which the water may be circulated to and from the soap.

While fine mesh fabric may be used in a single layer to serve any or all of the above purposes, and while the stretching tension of the fabric may be varied within wide limits to modify the natural positions of the metal ribbon therein, I prefer multiple layers of relatively loose fabric, because they afford an elastic, heavily cushioned working face for the pad, making it self accommodating to the work while at the same time protecting the soap. It will be evident that in this form of cushioning the deepest layers of the cushion are as readily self cleaning as the outer layer. In this respect, the present form of my invention has an advantage over the form shown in my companion application, Serial No. 61,187, filed October 8, 1925, wherein the padding between the cake of soap and the metal fabric wrapper is in the form of a pad of metal wool.

If the metal ribbons of the fabric are of as soft metal and as thin as may be desirable for properly scouring metal surfaces without scratching them, rough usage of the device may wear out the fabric before the soap has been used up. If this happens in the case of the preferred form, the only result is to expose successive layers of fabric each of which has been up to that time protected from injury by the layer that has become worn out. The novelty and advantage of this feature of my invention will be readily appreciated. The number of layers of wrapper supplied may be designed with reference to the strength of the ribbons employed in the fabric and with reference to the size of the cake of soap, for the purpose and with the result that the wrapper will last as long as the soap.

Where the wrapper is a very heavy metal fabric, either woven or otherwise, there may be only a single layer of fabric wrapper, and in such case any violence that may destroy the wrapper, will leave the soap still in useful form, because the soap is not anchored to or mechanically interengaged with the mesh of the wrapper and can be slipped out of the wrapper at any time.

It will be evident, however, that in certain cases the cake of soap may have one or more faces embedding the fabric. Even when the article is made as shown in Fig. 1, the maker or user may bring about this result by soaking the lower face of the soap until it softens enough to penetrate the meshes of the fabric. Even when this happens as to one face, the other face will still provide cushion pad scraper surface for engagement with the work.

It will be noted that the soap affords a somewhat yieldable or non-rigid but substantial backing for the ribbon fabric; also that in the form shown the faces of the soap cake are recessed so that when under pressure most of the area of the wrapper fabric can yield before it contacts with the soap. In normal operation, this tends to relieve the fabric from deforming stresses, tending to preserve the form of the weave and the resilience of the ribbons in the free areas of the fabric particularly in the inner layers. This resilience is sufficient to take up slack such as might be produced by considerable permanent stretching out and straightening of ribbon mesh in various parts of the fabric.

It will be obvious that as concerns certain of the broader claims, the expression "cake of soap" is intended as descriptive of hard soap and is intended to include such soap whether in the form of one or more lumps or cakes.

I claim:

1. A cleaning device, comprising an open

ended tube of metal fabric, a solid backing therein, the ends of said tube being folded over said backing toward each other, and means fastening the ends to each other to secure the solid backing therein.

2. In a cleaning device, an open ended tube comprising a plurality of layers of metal fabric, a cake of soap therein, the ends of said tube being folded over said backing toward each other, and means fastening the ends to each other to secure the cake of soap therein.

Signed at New York, in the county of New York, and State of New York, this 7th day of October, A. D. 1925.

CROSBY FIELD.