Jan. 1, 1929. 1,697,499

C. FIELD

CLEANING PAD

Filed Sept. 4, 1925

Fig. 1.

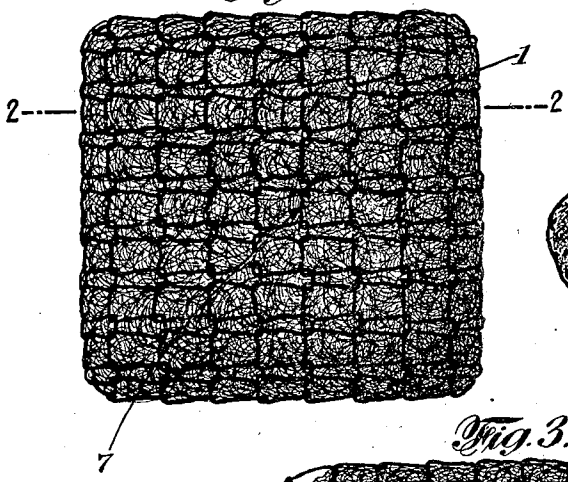


Fig. 2.

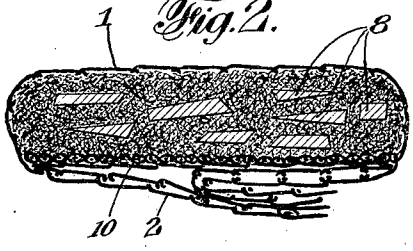


Fig. 3.

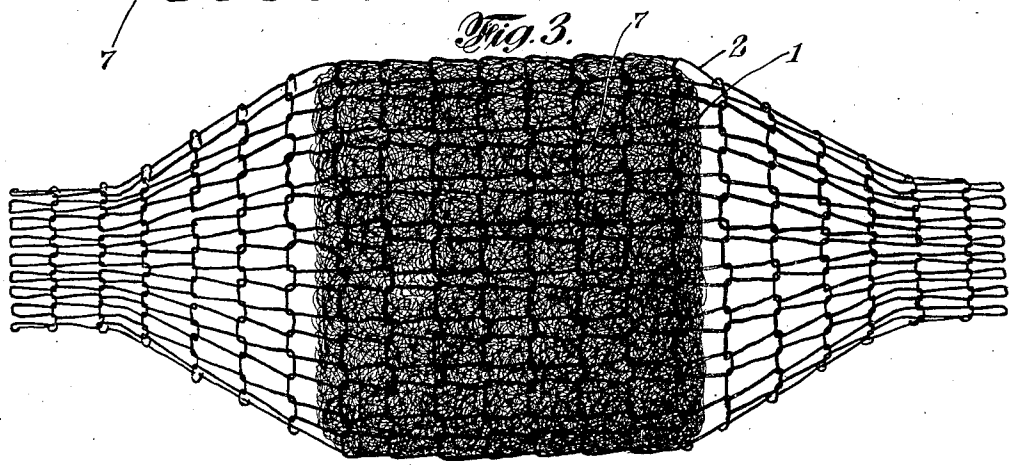


Fig. 4.

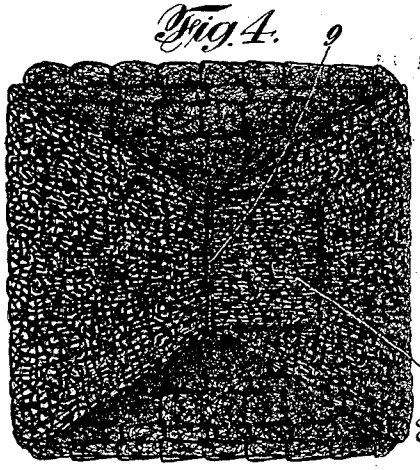
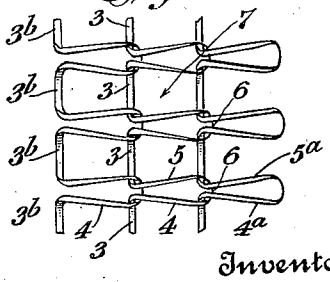


Fig. 5.



Inventor

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By his Attorney

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UNITED STATES PATENT OFFICE.

CROSBY FIELD, OF BROOKLYN, NEW YORK, ASSIGNOR TO BRILLO MANUFACTURING COMPANY, INC., A CORPORATION OF NEW YORK.

CLEANING PAD.

Application filed September 4, 1925. Serial No. 54,400.

My present invention relates more particularly to pads of the type used for cleaning and scouring metal and other surfaces, particularly aluminum and other household utensils.

Proper cleaning of such metals, particularly of kitchen utensils usually requires removing a certain amount of grease and dirt and also removal of the minute film of oxide or tarnish that clings to and usually forms part of the metal. The removal of the dirt is facilitated by soap and water but is supplemented by mechanical scraping, which is preferably by means that is not readily clogged by the grease or dirt and does not scratch the metal, while the other function of removing the surface film of the metal and polishing it is best accomplished by an abrasive of fine texture but biting quality operating to remove the film by multitudes of microscopic shallow cuts or scratches.

Metal wools are best adapted to produce the film removing and polishing action, and have been found most convenient in the form of compressed pads, but these pads tend to lose their shape upon use, and thereby lose their effectiveness and convenience. They tend, moreover to disintegrate into irregular portions of metal wool, and in so doing become hard to handle, and render possible injury to the hands because of loose or flying fibres which may twist about the fingers and possibly cut them.

My present invention contemplates a pad in which the fine mechanical abradant, that is, the metal wool is employed in close association with a coarser metallic holding means preferably in the form of a metal fabric enclosing the metal wool.

By having metal fabric in which the openings in the mesh are of sufficient size, I may provide a holder having openings through which the metal wool can bulge sufficiently to perform its film removing and polishing function.

To assist the grease removing action of the cleaning pad, I preferably enclose therein pieces of soap, preferably enclosing them within the steel wool so that they will be less likely to be broken up or escape through the meshes of the fabric.

A very important and preferred embodiment of my invention concerns the use of copper ribbon for the scraper fabric in combination with steel wool held within the fabric and pieces of soap within the steel wool.

The metal fabric envelope may be secured about the metal wool in any desired way. A cheap and attractive way is to have the envelope of thin flexible copper ribbons made on a stocking knitting machine, since this permits extreme lateral or endwise distortion of the fabric because of the looped structure and the slippery, springy quality of the metal ribbon.

This or any other suitable fabric may be formed as a tube, the metal wool and 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 metal wool, but provided also with a certain amount of scraping ribbon which will be afforded by the enclosing fabric even though the latter be very open and considerably stretched. The reverse or folded-over side is covered by so many thicknesses of ribbon fabric that it is practically all soft non-cutting copper surface, forming a soft cushion for the hand and simultaneously protecting it and holding it out of contact with the abradant metal wool.

In order to still further increase this protection to the hand I may insert one or more layers of woven wire cloth of fine mesh in the stocking just under the folded-over side and may while making the stocking change the mesh, as is well known in the art, so as to give a relatively large mesh on the side which is to contact with the article being cleaned, and a relatively fine mesh on the side to be in contact with the hand.

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 view of the open mesh face of the pad;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a view like Fig. 1 but showing the extended ends of the metal envelope before they are folded over.

Fig. 4 is similar to Fig. 3 but showing the ends of the fabric gathered together and secured in position.

Fig. 5 is a view indicating in detail and on a large scale the preferred arrangement of the ribbon loops of the knitted fabric.

In these drawings the metal wool 1 is shown as enclosed in an envelope of metallic fabric 2. This fabric may be of wire as it appears to be in Figs. 1 to 4 and such wire may be of any desired cross-section and the weave or knit of the fabric is as indicated in Fig. 5. Here it consists of ribbons interengaged longitudinally of the fabric in slip loops. While 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. 5 is where the fabric is somewhat stretched so that the ribbon extends zigzag and comprises more or less aligned portions 3 that are likely to be more or less curved. By reason of their length and tension these portions are apt to lie more or less flatwise in the surface of the fabric, as shown. Intermediate the portions 3, the ribbon extends lengthwise of the fabric in loops comprising legs 4, 5, which are apt to be partly flat and partly edgewise and these are connected by intermediate curved portions 6, that are apt to be edgewise. Through the tip of each loop 5 is looped in the loop 4^a, 5^a, of an adjacent strand of ribbon, while the base of the loop is encircled by the loop portion of the other adjacent strand.

As shown the fabric is supposed to be somewhat tensed so that the strands and loops are in fairly definite positions and in practice many portions of the fabric will have the ribbon presented edgewise so that the whole structure is adapted to afford a multiplicity of non-abrasive scrapers well adapted for scraping and loosening grease and dirt without becoming clogged.

The reticulations or open spaces 7 are of such size that when the fabric is stretched as shown in the drawings, there is ample room for exposure of the soft springy metal wool.

As soap and water are always applied by these pads I have shown in Fig. 2, cakes or pieces of soap 8 enclosed in the fabric, preferably in the steel wool, so that they will be less likely to tear or fall through the mesh of the fabric.

As shown in Fig. 3 the metal fabric envelope 2 may be in the form of a cylinder or tube considerably longer than the pad 1 and the article may be completed merely by gathering the free ends, and then, as shown in Fig. 4, overlapping and binding them with a wire 9. Preferably the thus assembled pad is put in a press and flattened and formed to standardized dimensions and appearance. In this condition the surface shown in Fig. 1 affords a heavy layer of fabric protecting the hand from contact with the wool when the face shown in Fig. 1 is to be pressed against the work. The other face shown in Fig. 4 is mostly scraper surface because the numerous superposed puckered and flattened layers of ribbon fabric practically cover up and mask the underlying metal wool. The copper surface being less apt to clog or become matted is best for use on thick soft grease while the opposite metal wool surface is best for polishing.

The face of the metal wool which is shown in Figure 4 may be further protected from possible contact with the hand by insertion of a layer of woven fire fabric 10, as shown in Figure 2. It will be understood in all cases it is possible for the user to slip the fingers under the overlapped end of the fabric 2, so that the article becomes in effect a padded mitten in which the fingers of the user may be protected from the steel wool by the above described wire fabric.

The material forming the open mesh fabric is preferably of non-ferrous, relative soft metal, such as copper, aluminum or German silver. When copper is used some electrical or electro-chemical action, probably due to the copper in contact with the steel wool, has the effect of darkening and giving a blue tinge to the steel wool, which is ordinarily an unattractive, cold, gray, characteristic of raw cut surfaces of wool. The darkened bluish steel wool furnishes an artistic attractive and harmonious background for the copper ribbon net work by which it is covered. Although the body of the pad is preferably of steel wool, it may be of copper wool and enclosed by aluminum or copper fabric.

One advantage of forming the fabric covering as a tube with the ends folded over and fastened together, is that it enables the fingers to be placed within the pocket formed between the connected ends of the covering and the main body of the pad.

I claim:—

1. A pad including a body of steel wool and a surface covering of copper ribbon fabric.

2. A pad including a body of steel wool with a surface covering of open mesh fabric of knitted metal strands.

3. A pad comprising a body of metal wool, a metal fabric of open mesh enveloping said body to expose the metal wool, said fabric being arranged in multiple thickness over part of the surface of the pad, for the purpose described.

4. A pad comprising a mass of metal wool enclosed in an envelope of open-mesh metal fabric, the fabric being tubular and having the extended ends folded back and secured to form the fabric-enclosed pad.

5. A pad comprising a mass of metal wool enclosed in an envelope of open-mesh fabric, the fabric being tubular and having the extended ends folded back and secured together on the same face of the pad to afford multiple layer covering for the wool.

6. A pad comprising a mass of metal wool enclosed in an envelope of open-mesh fabric, the fabric being tubular and having the extended ends folded back over the mass of wool and secured together on the same face of the pad to afford a multiple layer covering for the wool, the fabric on the other face being stretched to expose the metal wool.

7. A pad comprising a mass of metal wool enclosed in an envelope of open-mesh fabric formed of springy metal ribbons having interlooped portions normally tending to curved form by inherent resilience, but, when stressed tending to bend sharply at points of interengagement and to straighten between said points, the fabric being tubular and having the extended ends folded back and secured to the same face of the mass of wool to afford multiple layer covering for the wool, the fabric on the other face being stretched to expose the metal wool.

8. A pad comprising a body of steel wool, and a covering for said body of open mesh non-ferrous metal fabric.

9. A scouring pad comprising a body of metal wool, and a separate covering therefor of open mesh metal fabric exposing the wool.

10. A scouring pad comprising a body of metal wool, and a separate covering therefor of open mesh knitted metallic fabric exposing the wool.

Signed at New York in the county of New York and State of New York this 3rd day of September, A. D. 1925.

CROSBY FIELD.