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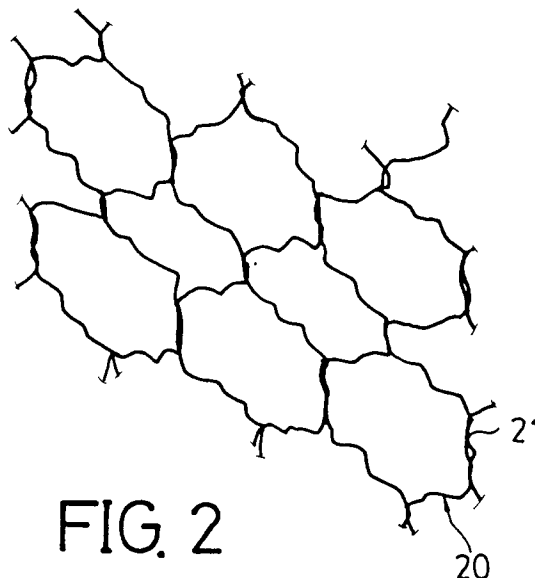
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(54) **An artificial sponge with improved texture.**

(57) An artificial sponge comprises one or more sheets constituting a latticework structure drawn together by a string or the like to form a dense mass. The latticework structure comprises a plurality of polygonal loops (20) defined by a plurality of inter-connected filaments (21) of plastics material. The filaments defining the loops are of non-linear, curly or crinkly shape.

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The present invention relates to an artificial mopping/wiping sponge having an improved network texture formed by intertwined curled yarns which together defines latticework of polygonal lattices that can increase the effective contacting area, and therefore the rubbing effect between the sponge and the wiped object, thereby enhancing the wiping efficiency.

Used, often greasy tablewares are practically mopped or wiped by means of a soft, porous and absorbent mass, which can be natural material, for example, a piece of natural sponge or a so-called "sponge-fruit mop" [a fibrous mopping mass made of a sponge fruit (sponge gourd)], or synthetic material, such as an artificial sponge.

The natural materials have the disadvantage that they wear rapidly and therefore have poor durability. For this reason, artificial sponges are increasingly used to replace them. Referring to Figs. 1, 4 and 5, an artificial sponge (10), which can be provided with a tying lace (11), is formed by drawing and spinning a plastic material into straight yarns (31) and knitting them into latticeworks (30) of polygonal (preferably hexagonal) lattices which are juxtaposed and superposed to form a three dimensional network. Thanks to the artificial yarn which has a far stronger resistance to wear than the natural material, the durability of the artificial sponge is much improved.

The disadvantage of the known artificial mopping/wiping sponge consists in its relatively poor rubbing effect. Referring to Figs. 4 and 5, in wiping, the latticework (30) is repeatedly rubbed against a surface. Since each lattice comprises a hexagonal loop of smooth (here the term "smooth" means "uncurled") yarn, which tends to "slip" on a surface instead of rubbing heavily thereon, the effort applied by the hand cannot be efficiently transformed into the friction between the artificial sponge and the wiped object. As a result, the mopping efficiency is altogether unsatisfactory.

Moreover, since the hexagonal lattices, with their smooth yarns that define the hexagonal loops, can be easily compressed to a much smaller volume, the effective, contacting area between the sponge and the wiped object is greatly reduced when a force is applied, the insufficient wiping efficiency is further worsened.

Accordingly it is the object of the present invention to provide an artificial mopping/wiping sponge with an improved texture which obviates or mitigates the aforesaid drawbacks.

Since it is the "smoothness" of the loop of the lattices that is responsible for the poor efficiency of the conventional artificial sponge, according to this invention, the loop is formed by curled yarns to give a relatively "rugged" lattice which on the one hand greatly increase the friction between the

sponge and a wiped object, and on the other hand, greatly reduces the compressibility of the lattices, and therefore of the sponge under a pressure, thus largely increasing the wiping efficiency.

This invention will be better understood when read in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a known artificial mopping/wiping sponge with a tying lace;

Fig. 2 is an enlarged view showing the latticework texture of an artificial sponge according to this invention in unstressed state;

Fig. 3 is a view of the latticework texture in Fig. 3 in compressed state;

Fig. 4 is an enlarged view showing the latticework texture of a known artificial sponge in unstressed state;

Fig. 5 is a view of the latticework texture in Fig. 4 in compressed state.

Referring to Figs. 2 and 3, as stated before, the loops (21) are formed by curled yarns (21), which make the latticework less compressible. Thus the force applied by the hand can be more efficiently applied to the wiped tablewares. Since the sponge is not so much compressed under the applied force, the effective area is less reduced. Moreover, the curled yarns of the latticework provide a far higher friction than the conventional uncurled yarns. accordingly the rubbing effect is greatly improved.

The curled texture can be easily obtained by a secondary treatment on the known sponges of latticework texture with uncurled yarns. The secondary treatment is performed by putting artificial sponges of the conventional latticework texture in a container, and then the texture is subject to a warming and a pressurizing process so that the yarns become curled. Since the details of the secondary treatment is not the main feature of this invention, further description can be omitted.

Thus a sponge in accordance with the present invention comprises a sheet, or more preferably a plurality of sheets, comprising a latticework structure of substantially polygonal loops defined by a plurality of interconnected filaments of plastics material. The sheet or sheets are preferably gathered together to form a dense mass by one or more strings or ties drawn tightly around the sponge. In accordance with the invention, the frictional or abrasive action of the sponge is improved by the fact that the filaments, i.e. the elements defining the polygons, are curly, that is to say non-linear, e.g. are of crinkly or crimped shape.

The sponge in accordance with the invention may be used not only as a mop for mopping/wiping purposes but can also be used as a bathroom sponge.

Claims

1. An artificial sponge formed by latticework texture of substantially polygonal loops defined by intertwined yarns, the improvements comprising in that said yarns are curled. 5

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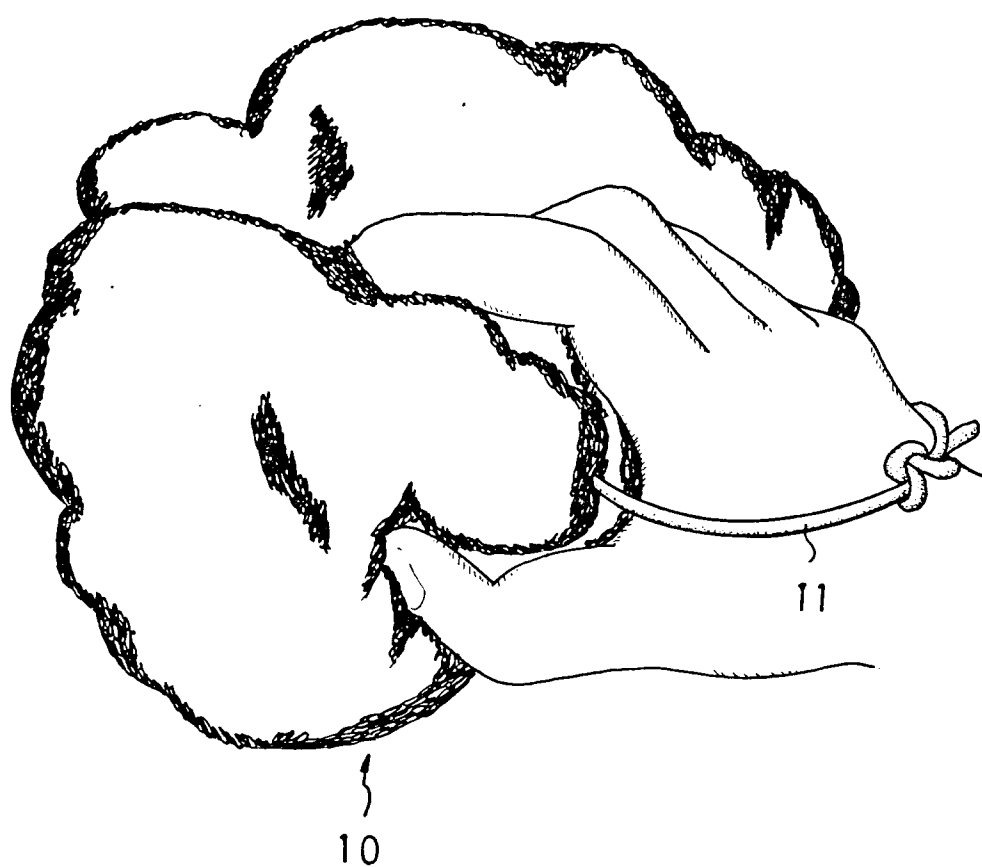
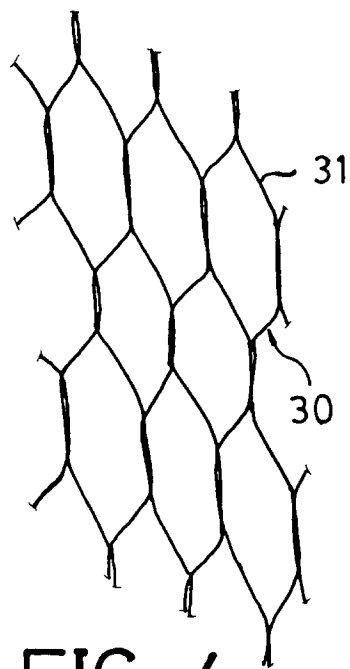
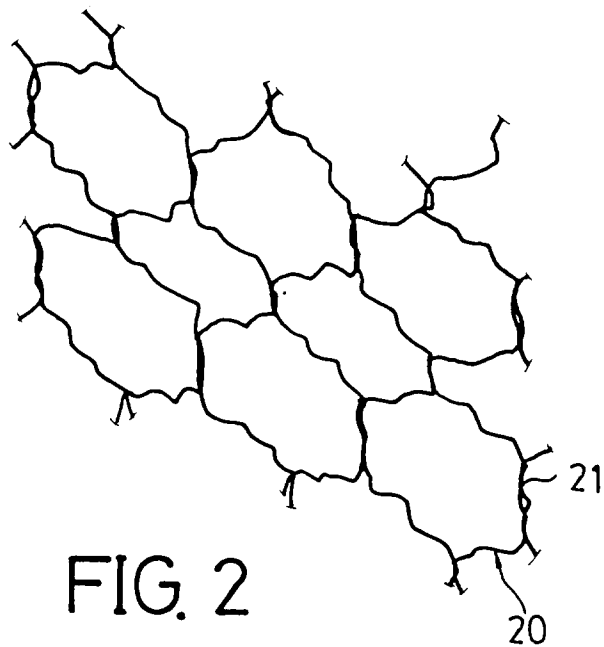


FIG. 1
PRIOR ART



PRIOR ART

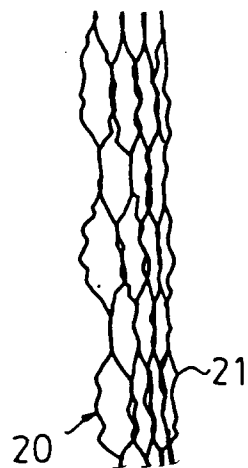


FIG. 3

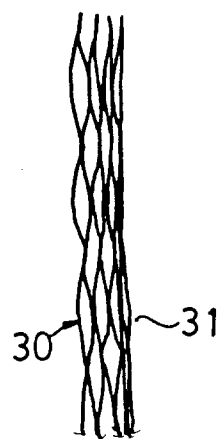


FIG. 5
PRIOR ART



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EUROPEAN SEARCH REPORT

Application Number
EP 93 30 7396

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
Y	US-A-5 144 744 (A. CAMPAGNOLI) * the whole document * ---	1	A47L13/16
Y	DE-A-21 56 114 (DUNLOP HOLDINGS LTD) * page 4, last paragraph - page 5, paragraph 2 * ---	1	
A	GB-A-1 131 846 (NYLONGE CO) * the whole document * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			A47L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 September 1994	Examiner Vanmol, M
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