United States Patent

Landsberg

[15] **3,634,901**

[45] **Jan. 18, 1972**

[54] COMBINATION SPONGE AND SCOURING DEVICE AND METHOD OF MAKING THE SAME

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[22] Filed: **Feb. 26, 1970**

[21] Appl. No.: **14,438**

[52] **U.S. Cl.** .....**15/118**, 15/209 R, 112/411, 161/65, 300/21

[51] **Int. Cl.**.....**A47l 13/16**, A47l 17/08

[58] **Field of Search** .....15/114, 115, 118, 209 A, 159 A, 15/244 B, 244 C, DIG. 3; 112/76, 411; 161/64–66; 51/297, 400, 407; 300/21; 260/722

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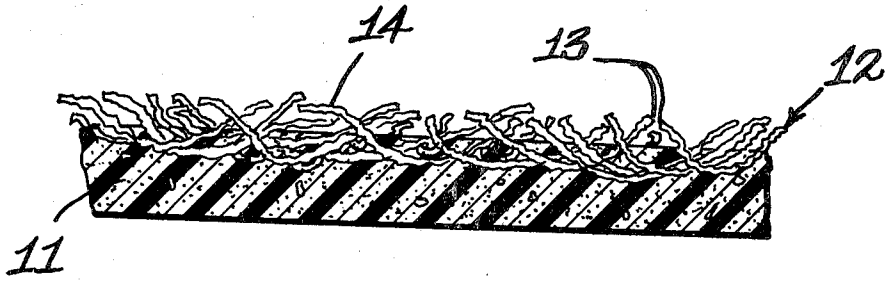
Primary Examiner—Daniel Blum
Attorney—Alexander Mencher

[57] **ABSTRACT**

The invention comprises a flexible and resilient absorbent pad or body capable of retaining and releasing liquid from its surfaces, said body having a plurality of abrading filaments in crinkled or wave formation projecting from said surface and frictionally secured to the body as by threading through a portion of said body on at least one side. The pad on said side provides an abrading action and on the other side a wiping action. The invention further encompasses the method of securing said filaments to the pad or body by frictionally anchoring said filaments in wave formation by a sewing operation.

4 Claims, 4 Drawing Figures



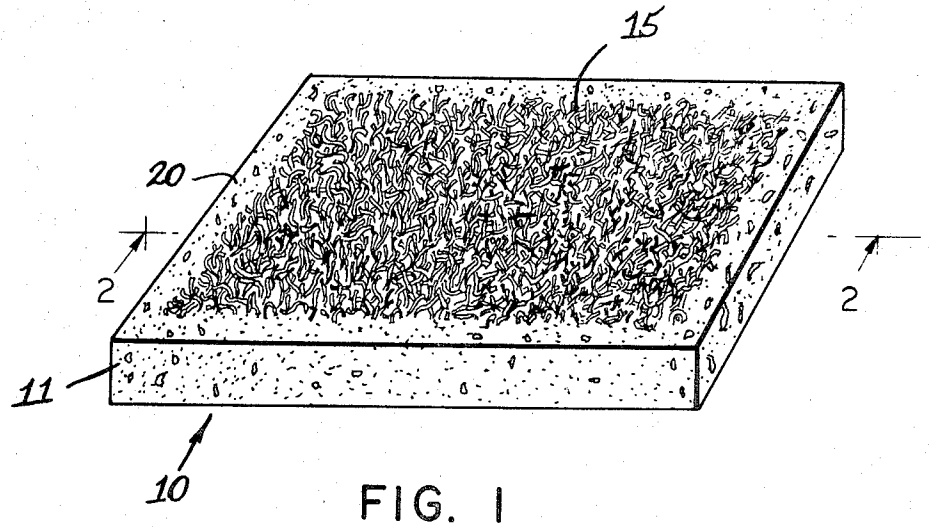


FIG. 1

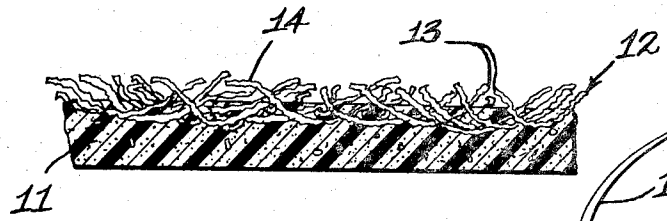


FIG. 2

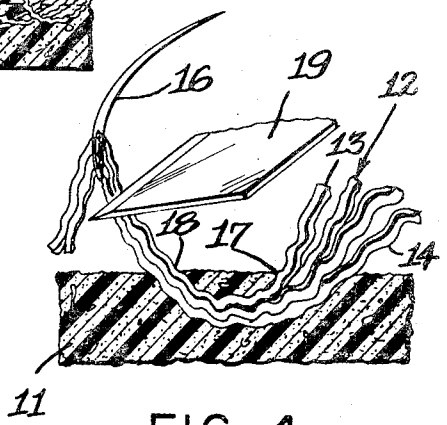


FIG. 4

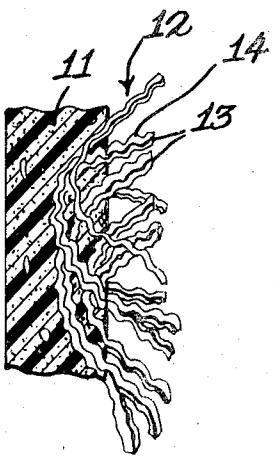


FIG. 3

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COMBINATION SPONGE AND SCOURING DEVICE AND METHOD OF MAKING THE SAME

The invention relates to a combined cleaning and abrading or scouring utensil capable of serving multiple functions including absorption of a cleaning fluid including water, dispensing of said liquid, abrading of greases and other coatings of dirt or particulate matter and absorption or retention of such materials and dirty solutions thereof resulting from said functions. The device and purposes of the invention are in the area of the art disclosed in U.S. Pat. No. 3,226,751 and No. 3,414,928.

The main object of the invention is to provide a new and improved device in the form of an absorbent or cellular pad having a plurality of crinkled or wavy monofilament plastic elements of angular sharp edged cross section for abrading purposes and projecting from any or more surfaces of the pad, the ends of each of the filaments being free for riding over obstructions. The pad surface area not being provided with said elements provides the cleaning or wiping functions with a liquid medium.

Another object of the invention is to provide a new and novel method of manufacturing such a new and improved device.

These objects and other ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

In the accompanying drawing showing a preferred from of the invention:

FIG. 1 is a view in perspective of the new and improved device wherein the pad is shown in the form of a cellular structure;

FIG. 2 is a foreshortened sectional view of FIG. 1 across the plane 2—2 thereof;

FIG. 3 is an enlarged fragmentary section of the device of FIG. 1; and

FIG. 4 is an enlarged fragmentary view in elevation and partly in section showing a manner of application of the monofilaments to the pad and the severance thereof in production.

The device 10 as shown comprises a soft and flexible cellular body or pad portion 11 and may be made of any thermoplastic polymeric material such as an expanded vinyl chloride, urethane and the like although other cellular materials including cellulosics may be used which are resiliently flexible as natural rubber or other synthetic sponge. Indeed cellulosic pads of one or more layers woven or otherwise formed may be utilized. Pad portion 11 as illustrated is comprised of suitable interconnected cells capable of holding a quantity of water or cleaning fluid to be dispensed against the surface to be cleaned by compression of the pad.

The pad portion 11 per se as from the plain underside surface performs the normal functions of a sponge or absorbent pad, but in order to clean safely any working surface of its many types of grime, crusts, coatings and other forms of dirt, an abrading surface must be provided, and the instant invention provides such a surface on at least one side of the pad 11.

Each of the abrading or scouring elements 12 shown as having free projecting terminals 13 are monofilament elements of sharp edged cross section and is in crinkled or waved formation along the length thereof as indicated by numeral 14. Monofilaments 13 may be extruded or strip-cut vinyl, "-Saran," or other suitable plastic and nonplastic material. Said monofilaments are crinkled or waved by suitable means as is known in the art as by heat forming or otherwise.

Abrading or scouring elements 12 are frictionally secured to the pad 11 to form a dense abrading surface 15 in a new and novel manner. As illustrated in FIG. 4, crinkled or waved filaments 12 are threaded through a side of pad 11 as by one or more curved needles 16 simultaneously. Needle or needles 16

each carry a plurality of filaments 12 and penetrate one surface of pad 11 to a suitable depth as at 17 for embedding same to pad 11, and said needle or needles emerge a suitable distance from the entry area as at 18. Above the point or points of emergence, the filaments 12 are cut as by blade or blades 19. The operation may be done by hand or machine, the latter suitably utilizing a plurality of needles simultaneously. Moreover, the manner of securing filaments 12 to the body 11 if done commercially may encompass a large pad or base area and thereafter, the completed area may be cut up into any consumer-size pads.

As shown in the drawing and for illustrative purposes of a housewife's pad, each of the filaments may be about 2 inches long and embedded about three-eighths inch down from the surface of pad 11. The latter may be about 3 inches long, 4½ inches wide and three-fourths inches thick. The distance between points of needle entry 17 and emergence 18 may be one-half inch thereby leaving each surfaced or exposed filament about five-eighths inches in length. A border 20 of about one-half inch may be left free of the filaments 12 to give the product a more attractive appearance. For larger cleaning and scouring requirements such as for floors, sidewalks, walls, etc., different dimensional requirements may be resorted to.

It is to be observed that the sewing operation described is applied to the pad 11 while the latter is in a dampened condition to avoid the tearing of the tissue thereof. Moreover, the crinkled nature of the filaments 12 contributes to the gripping action for tight frictional securement to the pad structure. In addition, said crinkled nature of the filaments afford greater abrading area of the abrading surface and the free ends 13 thereof prevent the catching of the filaments on obstructions in the working surfaces. The loss of any of the filaments during usage does not result in a tearing of the pad since each filament is frictionally held therein.

The structure above described has many applications in use without impairing the integrity of the working surface, including fabrics, pots, pans, dishes, glassware, eating implements, plastic items, tile, formica, metal tops, porcelain, cement, automobile tires, leather and plastic upholstery, floors, boat decks, canvas, and the like.

It is understood that minor changes and variations in the material, size of parts and integration thereof may all be resorted to without departing from the spirit of the invention.

I claim:

1. A cleaning and scouring device comprising in combination, a flexible cellular sponge pad capable of retaining liquid within itself and releasing liquid from its surface, a plurality of flexible and resilient plastic scouring filaments extending across a surface of said pad, each of said filaments being crinkled throughout the length thereof and having free projecting terminals extending from said pad surface and having the nonprojecting portions thereof along the full length intertwining the interior of said cellular body frictionally, flexibly and resiliently for securement thereto.

2. A cleaning and scouring device in accordance with claim 1 wherein said cellular body is of expanded plastic and said filaments throughout the nonprojecting portions are threaded through the interior of said cellular body for securement thereto.

3. A cleaning and scouring device in accordance with claim 1 wherein said scouring filaments are sharp edged in cross section.

4. In the method of producing a cleaning and scouring device comprising a flexible and resilient cellular body capable of retaining liquid within itself and releasing l liquid from its surface, the step of threading waved scouring filaments into and out of the said body from one surface thereof while said body is in moist condition to result in a plurality of free ended and waved filaments projecting from said surface.

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