



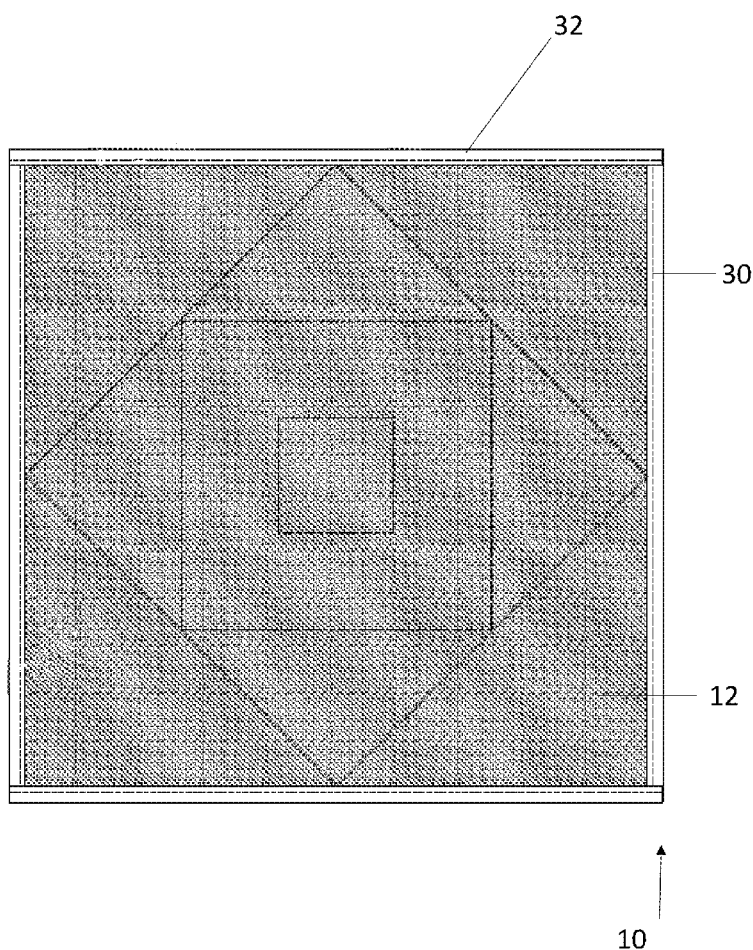
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(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2017/0127887 A1**
(43) **Pub. Date: May 11, 2017**(54) **WASHING IMPLEMENT****Related U.S. Application Data**(71) Applicant: **Conopco, Inc., d/b/a UNILEVER**,
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A47K 7/02 (2006.01)
(52) **U.S. Cl.**
CPC **A47K 7/02** (2013.01)(57) **ABSTRACT**

An implement which combines several desired functions in a single personal washing tool. The implement includes a cleansing side, an exfoliating side and a lather-generating core. The first layer is an open knitted material which is especially suited for exfoliation and performs the functions of a pouf, but preferably with superior cleansing. The second layer comprises an open cell polymeric material which is able to generate substantial lather and is interposed between the first layer and a third layer. The third layer is a terry knitted material which provides superior cleansing as compared to a standard cotton washcloth. The implement of the invention functions both as a washcloth and a pouf.

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Englewood Cliffs, NJ (US)(21) Appl. No.: **15/343,638**(22) Filed: **Nov. 4, 2016**

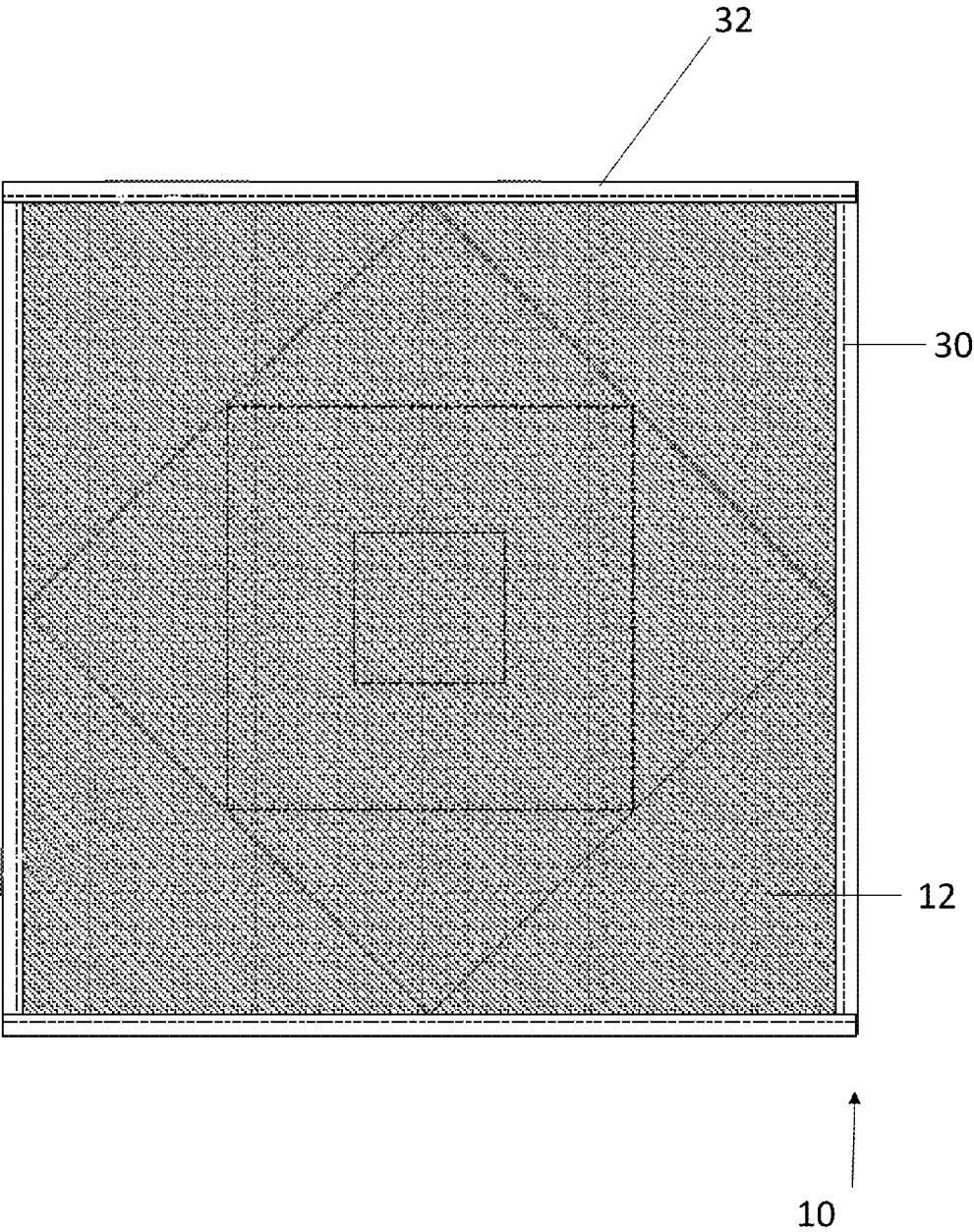


Fig. 1

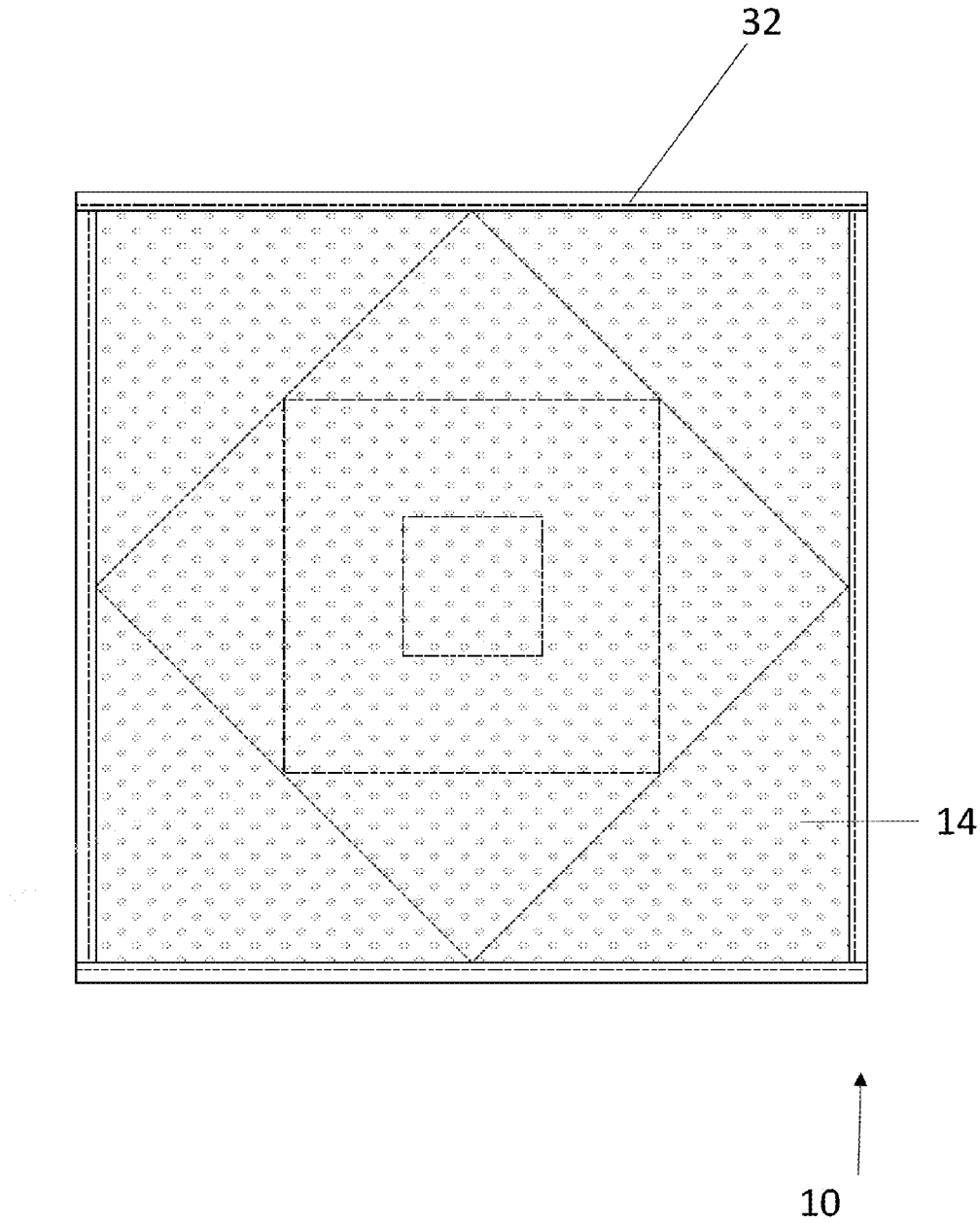


Fig. 2

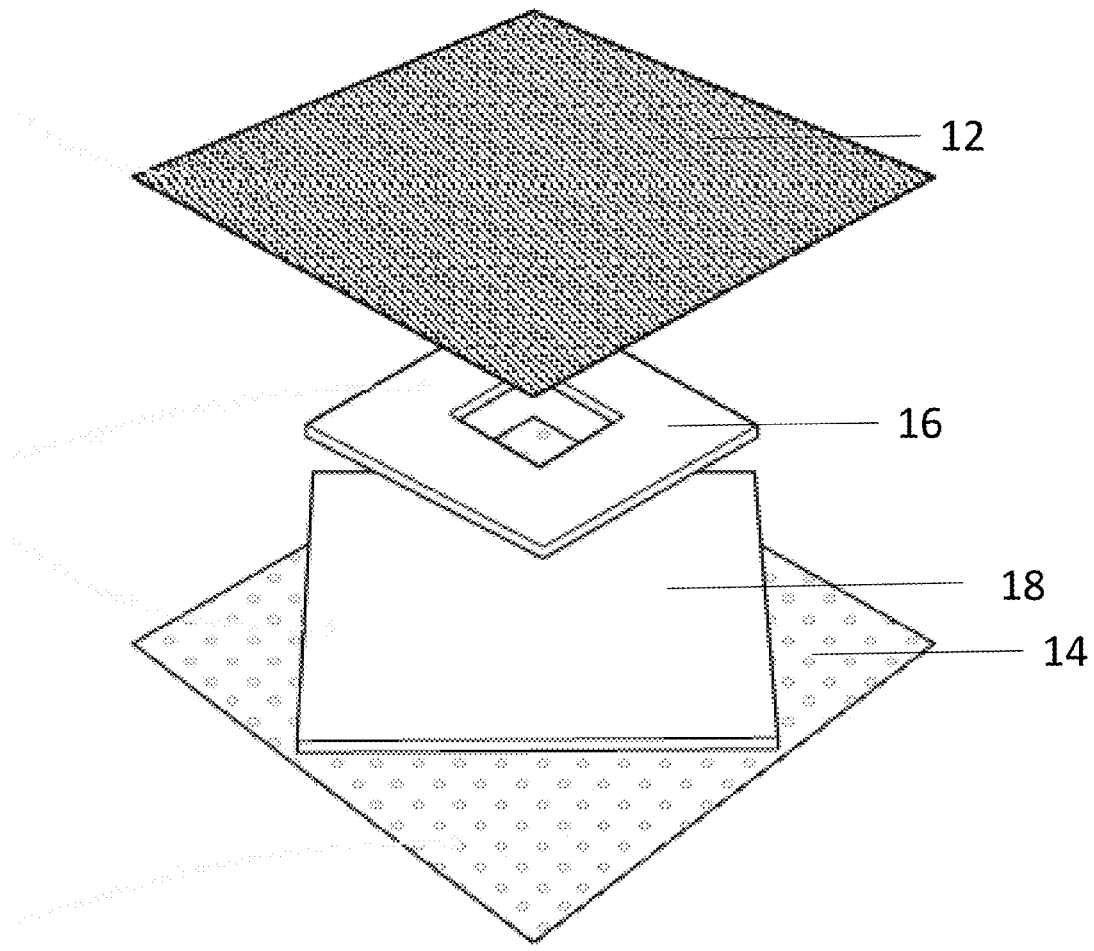


Fig. 3

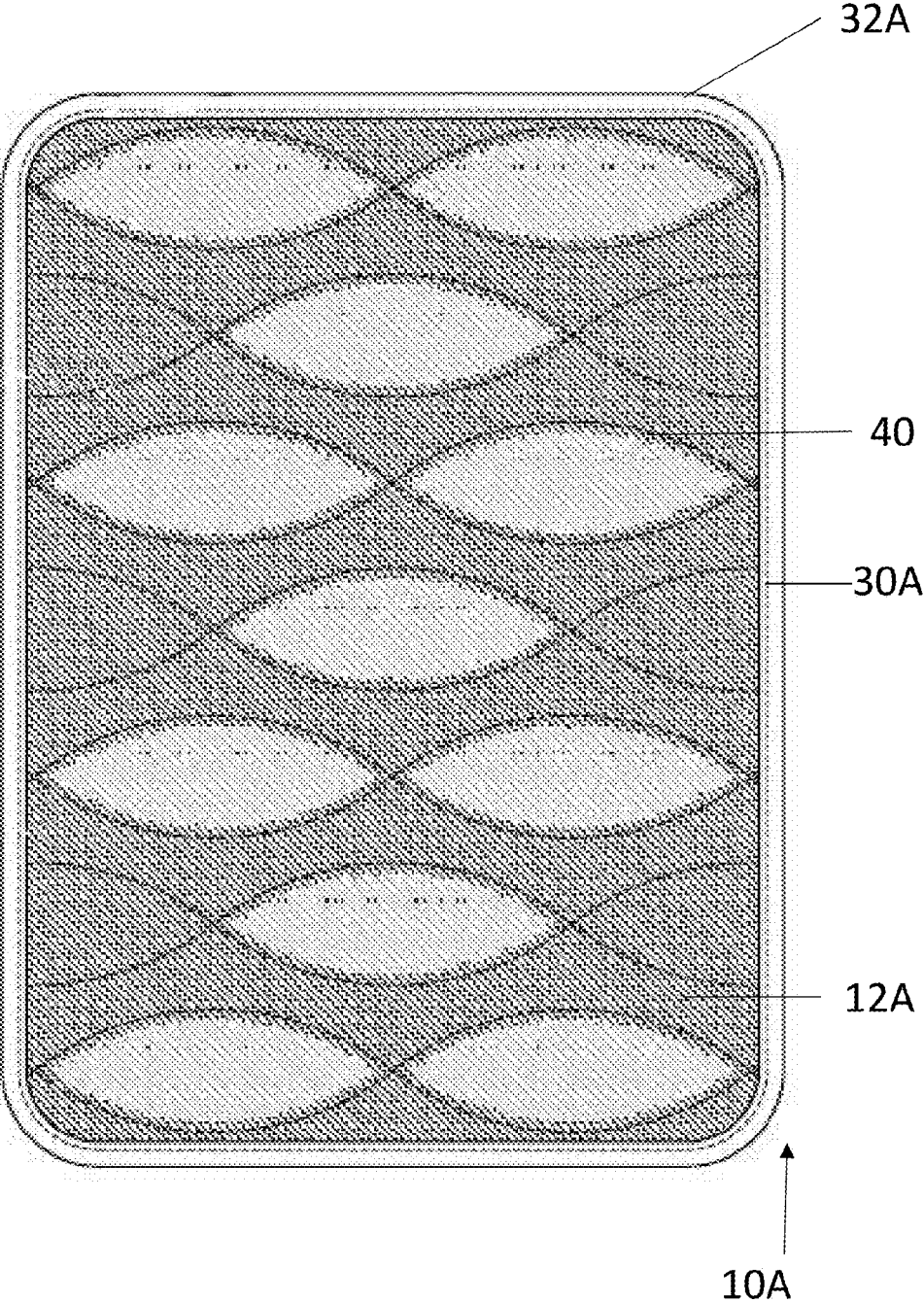


Fig. 4

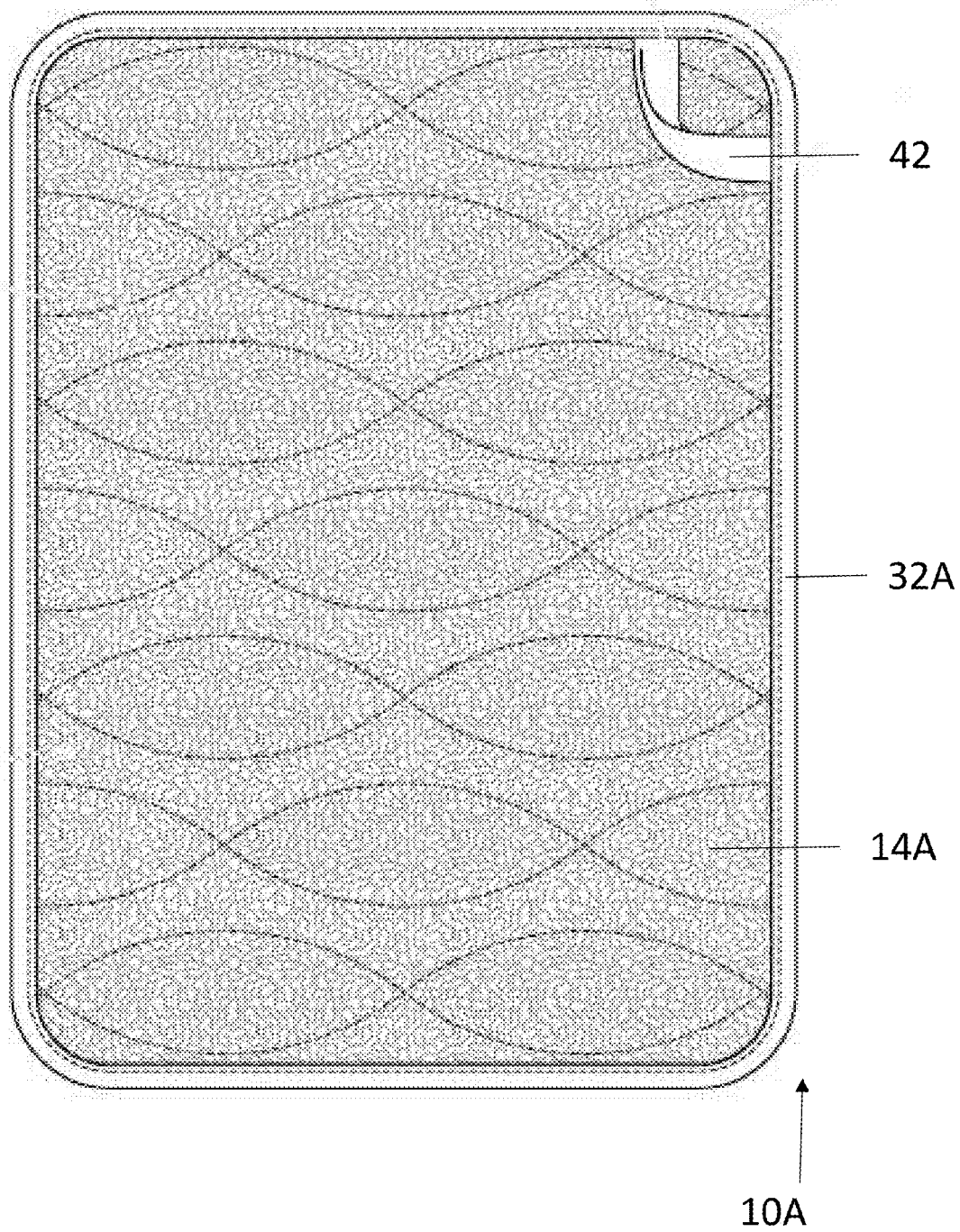


Fig. 5

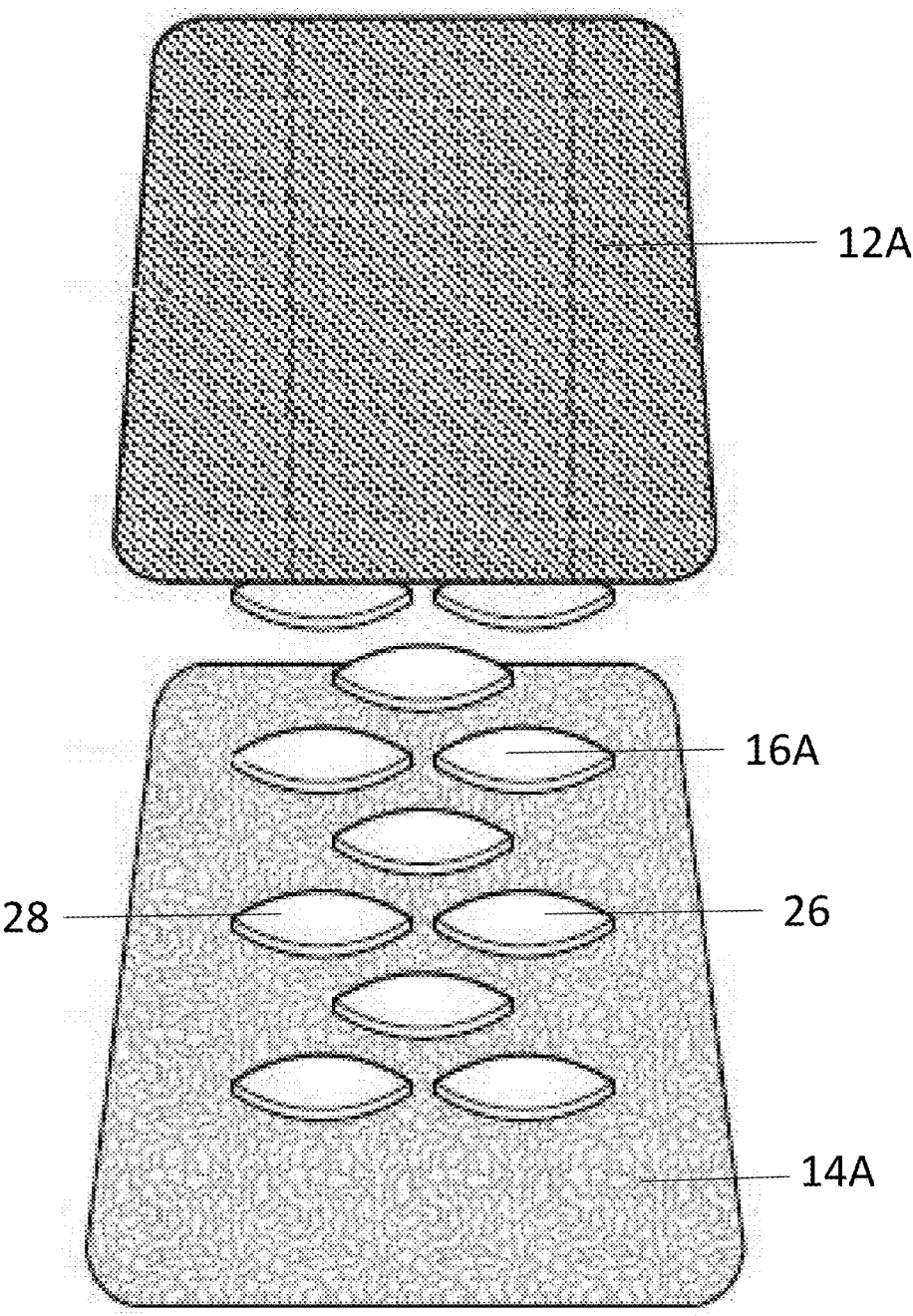


Fig. 6

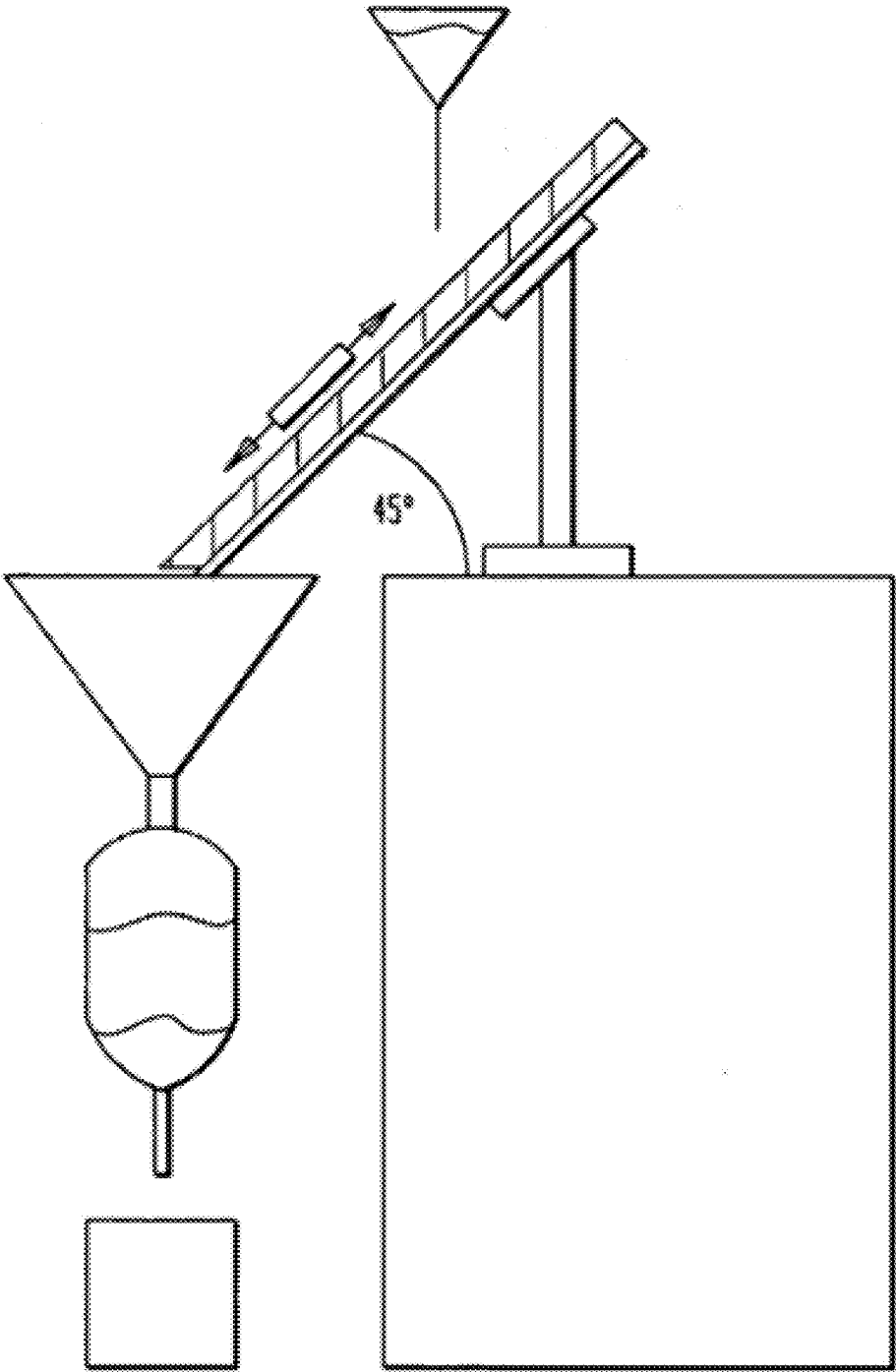


Fig. 7

WASHING IMPLEMENT

BACKGROUND OF THE INVENTION

[0001] While personal washing has a utilitarian function, it can also be a pleasurable experience.

[0002] As a utilitarian activity, it keeps the body clean of dirt. It also can help in exfoliation of the skin, that is, removing dead cells from the skin surface. Many believe that exfoliation is important in making the skin smoother and fresher looking. In addition to the immediate visual benefits of exfoliation, the removal of dead skin cells speeds up the skin renewal process, allowing smoother, healthier skin cells to take their place. Generating lather during washing can help the washer identify those areas which have been cleaned by contact with the beauty bar, body wash, soap bar or other washing product. Soap lather, which suspends dirt by greater surface tension in water, traps dirt for easy removal through rinsing.

[0003] Washing should also be a pleasurable experience. For instance, creating a head of lather can enhance the feeling of cleansing during a wash. Some of the areas for enhancing the experience include, fragrance bloom in the shower that provides a refreshing sensation, high quality and quantity of lather that signals effective cleansing and sensory pleasure, ability to reach hard to reach places for more thorough cleansing, deeper exfoliation for more invigorating sensation and more long lasting hygiene, better skin stimulation. Most consumers express dissatisfaction on these dimensions from their personal bathing experience, since the products or the implements currently available are unable to address these needs fully.

[0004] Washcloths used for cleaning and or washing the skin throughout the body are very well known. However, the washcloth does not produce a lot of lather nor does it provide adequate exfoliation. While wash cloths have been available for many years, recently, implements of many different types have become popular. For instance, mesh products such as “poufs” have been used, especially to enhance the lather of certain types of products like body washes, and to improve exfoliation. However, the pouf is recommended to be replaced instead of washed and reused, making it neither hygienic nor sustainable.

[0005] Numerous examples of washing or cleaning implements can be found in the literature.

[0006] Goodard et al. US 2007/0039116 discloses a body scrubbing device including a mesh and a cloth joined together. The mesh may comprise nylon and the cloth may comprise terry cloth.

[0007] D’Angelo US Patent Application Publication No. 2009/0193605 is directed to a bath sponge having a foam core which may be covered by a soft covering material in one section and by a rough covering material on another section to provide a choice of scrubbing surfaces. The rough material may be used to exfoliate the skin. A mesh body material is placed on top.

[0008] Morris US Patent application Publication No. 2008/263801 discloses a two sided cloth used for bathing or washing. It includes an exfoliating nylon mesh netting on one side. The other side of the cloth is bathing cloth material. The washcloth is generally made of a soft cotton material.

[0009] Ayleet Enterprises, Inc. website, <https://ayleet.com/product.php?id=1>, accessed on Oct. 28, 2015, discloses a lather cloth which is said to surpass the benefits of a loofah, washcloth, mesh bath pouf and back brush because it is said

to combine the benefits of these products and to wrap the body in a rich lather while it cleans and gently exfoliates. It is said that the mesh side will gently exfoliate your skin and enhance the performance of your skin care product. The washcloth side is said to clean away all the dead skin cells.

[0010] McMeekin et al. U.S. Pat. No. 6,957,924 is directed to a textured film device capable of producing excellent lather when used with a cleanser. The textured film has embossments, perforations, apertures or the like.

[0011] CN 302562239 discloses a soft emulsion sponge multi-functional bath rubber.

[0012] Borchers et al. U.S. Pat. No. 6,510,577 discloses sponge assemblies which comprise a substantially spherical mesh having an element of loofah secured thereto. The loofah can include inner and outer loofah layers with a reinforcing layer therebetween.

[0013] Chang U.S. Pat. No. 7,797,784 discloses a body scrubbing tool comprising a tubular net body and at least one member of a different material fastened thereto. Examples of the different material include cloth and sponge.

[0014] Gregoire et al. U.S. Pat. No. 8,632,790 is directed to a skin care pad comprising exfoliating elements distributed between at least one first fibrous layer and a second fibrous layer having a lower basis weight than the first. The pad can be used to exfoliate and massage the skin and to remove make up. The ’790 pad may also include a layer of exfoliating elements introduced between the first and second fibrous layers.

[0015] U.S. Pat. No. 7,488,697 discloses a skin care article exhibiting a scrub cleaning effect and comprising first and second external layers made of fibrous material.

[0016] Wikipedia, “Terrycloth,” accessed Oct. 30, 2015, discloses that French Terry is a fabric used in clothing. One side is flat while the other includes cross loops. It is either 100% cotton or contains polyester with elastane (lycra).

[0017] Other scrubbing devices or fabrics include those disclosed in U.S. Pat. No. 7,044,560, and US Design Pat. No. 663,084.

[0018] Even though many types of multi-surface washing implements have been available to consumers, what has been lacking is a single implement combining the many desired washing functions.

SUMMARY OF THE INVENTION

[0019] The invention is directed to an implement which combines several desired functions in a single personal washing tool. The implement includes a superior cleansing side, a superior exfoliating side and a lather-generating core.

[0020] Accordingly, the personal washing implement includes at least three layers. Typically they will be bound together. The first layer comprises an open knitted material which is especially suited for exfoliation and performs the functions of a pouf, but preferably with superior cleansing. Suitable materials include polyester/spandex. This open cell knit is not restricted on structure or materials, but must be rougher in sensory than the 3rd (top layer).

[0021] The second layer comprises an open cell polymeric material which is able to generate substantial lather. The second layer is interposed between the first layer, described above, and a third layer. The second layer may be a polyurethane foam. The open cell polymeric material is not restricted on thickness, shape, number of pieces or percentage of implement weight, but must be completely enclosed within the first two layers, and sewn in a manner to prevent

the latter from moving within the system. It can easily contract and return to its original shape, but not slip and move about the internal layer.

[0022] The third layer comprises a terry knitted material which provides superior cleansing as compared to a standard cotton washcloth. One material which can be used in the third layer is microfiber polyester terry knit.

[0023] The implement of the invention is similar to a washcloth, at least in that it is machine-washable, permits close skin contact and includes a surface similar in structure to a washcloth. On the other hand, the implement is similar to a pouf in view of its lather generation, exfoliation capability and hand-feel. It will also enjoy fast dry time and superior skin feel. The middle layer provides a lather boost.

[0024] The unique system of the invention is much lighter in density and is easier to handle than a cotton terry washcloth. The unique structure, thus allows for lower densities and will also permit the user to enjoy fast dry time and superior skin feel. The middle layer provides a lather boost to help give the sensorial performance of a pouf.

[0025] For a more complete understanding of the above and other features and advantages of the invention, reference should be made to the following detailed description of preferred embodiments and to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] FIG. 1 is a top plan view of the personal washing implement of the invention.

[0027] FIG. 2 is a bottom plan view of the personal washing implement of the invention.

[0028] FIG. 3 is a perspective exploded view of the personal washing implement of the invention.

[0029] FIG. 4 is a top plan view of an alternative personal washing implement of the invention.

[0030] FIG. 5 is a bottom plan view of the alternative personal washing implement of the invention.

[0031] FIG. 6 is a perspective exploded view of the alternative personal washing implement of the invention.

[0032] FIG. 7 is an illustration showing the setup of the lather procedure.

DETAILED DESCRIPTION OF THE INVENTION

[0033] Referring to FIGS. 1-3, washing implement 10 includes layers 12 and 14 which sandwich internal layers 16 and 18.

[0034] Layer 12 is a terry knitted material for superior cleansing, e.g., as compared to a conventional cotton washcloth or to a pouf. Layer 12 comprises microfiber 100% polyester terry knit. Contemplated alternatives include blends of polyester and natural fibers, such as cotton. Other contemplated alternatives include rougher natural fibers such as bamboo/jute. Preferably, there is at least some synthetic fiber in the blended yarns.

[0035] The knit structure is not limited to a specific type of terry knit; the loops (piles) can be a range of sizes, and the base structure density can vary too. The layer is not restricted to microfibers and could be either staple or continuous fibers, as defined below.

[0036] Layer 14 is an open knitted, mesh, scrubbing material especially suitable for exfoliation. Layer 14 comprises polyester/spandex. Alternative knits could be rougher natural fibers, such as bamboo or jute, or blended natural

cotton with polyester. The fibers can be continuous or staple. Continuous herein refers to a long extruded fiber spun to yarn (synthetic), and staple are short chopped fibers spun into yarn (synthetic and/or natural).

[0037] The structure of the layer 14 knit may be modified for alternate materials to ensure proper durability of the whole implement and to keep the functionality of the exfoliation while still allowing water flow for lathering. Materials are selected which provide superior cleansing to a pouf or a washcloth. The construction of the knitted material of layer 14 can differ in the range of densities, knit patterns/counts and is not restricted to synthetic materials as long as when it is within the multi-layer system of the invention it provides comparable exfoliation to a current pouf.

[0038] Layers 16 and 18 comprise an open cell polymeric material which is able to generate substantial lather. Layers 16 and 18 comprise polyurethane foam and are shown in two sections for appearance purposes since they can be seen through layers 12 and 14. While an open cell polyurethane foam is exemplified, layers 16 and 18 may be other types of open cell polymeric materials that have flexibility, resilience and tactility to maintain superior lather as compared to a regular washcloth. The middle layer is not restricted in terms of thickness or weight of the overall implement, but is placed in the middle of the three layers to maintain all three functions.

[0039] Contemplated alternative materials include thermoplastic resins and thermoplastic elastomers, indeed, any open cell structure with good thermal stability for wash and care. Resins which have a low melting point such as polyethylene are less preferred as these would melt in a dryer.

[0040] Layers 16 and 18 can instead comprise a single layer, if desired.

[0041] It may be possible to add additional layers without significantly adversely affecting the characteristics of the implement, as will be apparent to those of skill in the art.

[0042] FIGS. 4-6 show an alternative embodiment wherein there is a single middle, layer 16A disposed between layers 12A and 14A. Internal layer 16A may comprise internal separate pieces such as 26, 28, or may be one integral layer. The layers of the alternative embodiment may be constructed of the same materials as that of FIGS. 1-3. Separate pieces 26, 28 may be stitched into the fabric as by stitching 40 which extends through all layers of the implement. Layer 14A includes a hang tag 42 with a flip in the middle sewn under the edge binding of the implement.

[0043] The steps in making the implement of the invention begin with cutting the respective fabrics. Then, a dual sided terry layer is placed in a mold. Foam pieces (second layer) are placed on the terry layer. The open knitted layer is then placed on top of the foam pieces. All three layers are stamped together with an ultrasonic welding tool, making them adhere together.

[0044] Various stitching operations are performed on the welded-together tri-layer. Any pattern lines can be stitched into the resulting tri-layer using a sewing machine. The edges are then secured with an overlocked stitch 30, 30A. The edges are then covered with edging fabric 32, 32A and bound together using a sewing machine.

[0045] The corners are sewn and the edges are cut neat. The result is a tri-layer washing implement: an open knitted

layer, especially for exfoliation, an intermediate open cell polymeric layer for lather generation and a terry knitted layer for cleansing.

Example 1

[0046] Foam Lather Procedure:

[0047] 1. Intellifaucet® set to

[0048] 1. Temperature 100° F.

[0049] 2. Flow rate 5 kg/min (shower head faucet)

[0050] 2. Beakers filled with 100° F. water:

[0051] 1. (3) 100 mL beakers filled with 50 mL each

[0052] 2. (2) 150 mL beakers filled with 100 mL each

[0053] 3. (2) 400 mL beakers filled with 200 mL each

[0054] 3. Tray set at a 45° angle with bubble wrap on surface. A funnel with a diameter of 12.5 cm is placed 35 cm above the top of the inclined tray. A larger funnel having a diameter equal to the width of the tray is placed below the end of the inclined tray to collect the foam lather and run off into a 1 Liter separatory funnel.

[0055] 4. Completely saturate implement in 1.5 Liters of 100° F. water.

[0056] 5. 1 mL of Axe Dark Temptation® brand body wash is put in the center of the implement and the implement is squeezed 10 times in hand.

[0057] 6. The implement is secured to a second tray, lined with bubble wrap, with binder clips and placed facing down onto the surface described in step 3.

[0063] 12. Do not provide any additional pressure to generate additional foam. While the implement is on the tray, 200 mL of water is poured along the width of the top of the inclined tray, along the top lip of the implement tray to collect any foam trapped on the implement.

[0064] 13. The implement tray is removed from the inclined tray. 100 mL of water is poured along the width of the top of the inclined to collect any foam trapped on the inclined tray. Water is not poured beyond 10 cm of the top of the tray to prevent additional foam from being generated.

[0065] 14. The water is removed from the collected foam using the separatory funnel and the volume of the foam lather is recorded.

[0066] 15. The separatory funnel and implement are rinsed thoroughly before beginning the next trial with a minimum of 1 minute under the flow parameters in step 1 squeezing implement as needed.

[0067] 16. Repeat steps 1-15 for both sides of the implement if the implement is “dual-sided”.

[0068] The lather procedure set forth above is applied to four commercially available washcloths (“Commercial 1,” “Commercial 2,” “Commercial 3,” and “Commercial 4”), to a commercial pouf, and to the scrub and terry faces (faces of layers 1 and 3) of the implement of the invention, Prototypes 1 and 2. Table 1 shows that enhanced lather volume is generated with the implement of the invention.

TABLE 1

Implement	Run 1 (mL)	Run 2 (mL)	Run 3 (mL)	Run 4 (mL)	Run 5 (mL)	Avg (mL)	StDev (mL)
Commercial 1	200	225	200	225	225	215	12
Commercial 2	150	200	175	200	150	175	22
Commercial 3	225	225	200	225	200	215	12
Commercial 4	75	125	125	150	125	120	24
Commercial Pouf 1	300	325	325	300	400	330	37
Prototype 1 (Terry)	225	325	375	375	400	340	62
Prototype 1 (Scrub)	450	475	500	475	500	480	19
Prototype 2 (Terry)	300	375	425	200	225	305	86
Prototype 2 (Scrub)	425	475	525	300	350	415	82

Commercial Implements 1-4 were Grey cotton Terry wash cloths purchased from various stores. The pouf was a generic polyethylene pouf of 50 g. Prototype's 1 and 2 are ranges of various designs of the 3-Layer system, performing with enhanced lather on both sides of the implement in comparison to all of the washcloths and comparable to the Pouf.

[0058] 7. 50 mL of water is poured into the top funnel. While the water is flowing, the tray with the implement is compressed with a uniform Normal force to the plane and speed (about 1 per second) on to the inclined tray 20 times in repetition.

[0059] 8. 200 mL of water is poured into the top funnel. While the water is flowing, the tray with the implement is rubbed along the length of the inclined tray 40 times in repetition (about 1 per second).

[0060] 9. 50 mL of water is poured into the top funnel and the implement tray is compressed on to the inclined tray 20 times in repetition in the same way as step 7.

[0061] 10. 100 mL of water is poured into the top funnel and the implement tray is rubbed along the length of the inclined tray 20 times in repetition in the same way as step 8.

[0062] 11. 50 mL of water is poured into the top funnel and the implement tray is compressed on to the inclined tray 20 times in repetition in the same way as step 7 and 9.

[0069] As seen in Table 1, the terry and scrub sides of the present washing implement both generate higher volumes of lather than cotton terry wash cloths and have comparable lather to the commercial polyethylene pouf.

[0070] Several characteristics of the commercial washcloths, commercial pouf and the prototypes are set forth in Table 2.

TABLE 2

Implement	Implement Wet Saturation Weight (g) (Avg n = 3)	saturated density (g/in ³)
Commercial 1	298	16.5
Commercial 2	240	13.4
Commercial 3	253	14.1
Commercial 4	281	13.3
Commercial Pouf 1	99	3.6

TABLE 2-continued

Implement	Implement Wet Saturation Weight (g) (Avg n = 3)	saturated density (g/in ³)
Prototype 1	244	8.8
Prototype 2	180	7.7

Commercial Implements 1-4 were Grey cotton Terry wash cloths purchased from various stores. The pouf was a generic polyethylene pouf of 50 g. Prototype's 1 and 2 are examples of the 3-Layer system. The Prototype has a much smaller surface area than the Commercial terry washcloths, but similar in overall volume due to the plushness of the 3-Layer system. The implement is lighter due to its structure and thus has significantly lower dry and wet densities.

[0071] Implement Saturation Weight and Density Procedure:

[0072] 1. The Length, Width and Height were measured with a ruler for each of the Commercial wash cloths, the diameter was measured for the Commercial Pouf and the Length, Width and Height Averages were calculated for the Prototype Implements. The "Total Volume" of each implement was calculated via geometric calculations.

[0073] 2. One at a time, completely saturate each implement in 100° F. water by submerging implement in 2000 mL beaker. Remove implement from beaker and clip implement to hanging scale and record weight immediately. Repeat this step 3 times per implement and take the average of all three weights. This is the "Wet Saturation Weight" of each implement.

[0074] 3. The wet density was then calculated by dividing the Wet Saturation Weight determined in Step 2 by the Implement Volume calculated in Step 1.

[0075] In order that the implement of the invention has the feel of a washcloth yet the lathering of a pouf, it is preferred that the implement washing saturation weight in grams be within the range of from 125 to 325 (so that the implement "feels" like a washcloth) and the saturated density in g/in³ be within the range of 1 to 10 (so that the implement lathers like a pouf).

[0076] It should be understood, of course, that the specific forms of the invention herein illustrated and described are intended to be representative only as certain changes may be made therein without departing from the clear teachings of

the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

What is claimed is:

1. A personal washing implement comprising at least three different layers, including

- a first layer comprising a knitted material having an open structure,
 - a second layer comprising an open cell polymeric material which is suitable for generating lather, and
 - a third layer comprising a terry knitted material,
- d) the second layer being disposed between the first and third layers.

2. The implement according to claim 1 wherein the knitted material of the first layer comprises continuous or staple fibers.

3. The implement according to claim 1 wherein the knitted material of the first layer is made of polyester and spandex yarns.

4. The implement according to claim 1 wherein the first layer is exfoliating.

5. The implement according to claim 1 wherein the second layer comprises open cell polyurethane foam.

6. The implement according to claim 1 wherein the terry knitted material comprises polyester.

7. The implement according to claim 6 wherein the polyester comprises microfibers.

8. The implement according to claim 1 wherein the first and third layers have cleansing properties.

9. The implement according to claim 1 having a washing saturation weight in grams within the range of from 125 to 325 and a saturated density in g/in³ within the range of 1 to 10.

10. The implement according to claim 9 having a saturated density in g/in³ within the range of 5 to 10.

11. The implement according to claim 9 having a wet saturation weight in grams of from 125 to 275.

12. The implement according to claim 10 having a wet saturation weight in grams of from 150 to 275.

* * * * *