A counterintuitive sandwich cloth.
LIQUID PROOF SANDWICHED LAYER CLEANING TEXTILE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] This invention relates generally to rapid and efficient cleaning tool and more particularly to cleaning cloths and paper towels.
[0003] 2. Description of Related Art
[0004] Various cleaning cloths have been disclosed in the prior art as being useful for wiping off dirt and grime, to clean, and polish. These textiles have absorbent wet or dry dirt/grime pickup surfaces. The focus of the multi-million dollar industry is on increasing absorbency properties. They have spent much time and dollars on microfiber technology, which brought about amazing absorbent power, illustrated in Sham-Wow™ infomercials.
[0005] Rags, cloths, paper towels, textiles are used to wipe off dirty surfaces, such as kitchen counter-tops, floors, desks, hands, or body after shower, and cars. Textiles are used for dusting, polishing, or drying off wet surfaces. Textiles are used in laboratories, factories, or car repair shops to wipe off grease, oils, or chemicals.
[0006] Hale, U.S. Pat. No. 5,918,341 describes a revolutionary advancement in the application of surface pattern folding guide map applied to a cleaning device to shorten cleaning time, and simplify the cleaning process. It imbeds cleaning technology professionalism of maids and janitors into the hands of untrained consumers. In seconds, the untrained consumers immediately apply the speed and thoroughness of professionals of an excellent cleaning job well done.
[0007] 3. Revolutionary Breakthrough Nature of New Invention
[0008] Historically, when people think of cleaning fluids or water off a surface, they think of absorbing. This invention surpasses all prior absorbent cleaning textiles by using the counter-intuitive built-in waterproof layer. The water repelling or fluid barrier as a cleaning material common sense-ly seems like it would not work to clean dirty surfaces.
[0009] Instant invention contains layered fluid barrier and absorbent material as cleaning device. The device contains a layer or lamina absorbent and a fluid repellent or vapor barrier. The concept is the counterbalancing action of repelling and absorbing fluid.
[0010] The cleaning device has counterbalancing actions of repelling and absorbing moisture, fluids, vapor, and water.
[0011] The invention has dually opposite paradox co-existing inside one device.
[0012] The cleaning device works like a transistor that revolutionized electronic technology. Similar concept is opposite pairing, or coupling, like male and female.
[0013] The vapor barrier allows small portions of the material to be used without soiling the remainder of the material. Further, by demarcating hand-sized portions of the material and even by numbering those portions, a relatively large number of uses are permitted while avoiding the un-intentioned soiling of the remaining material.
[0014] Textile as a word is used herein to include cloth, felted sheet preferably made from vegetable fiber commonly known as paper, paper towels, toilet paper, and cleaning wipes.
[0015] A paper towel is a tissue paper made from absorbent paper rather than cloth. Unlike cloth towels, paper towels are disposable and intended to be used only once. Paper towels can be individually packed (as stacks of folded towels) or held on a continuous roll.
[0016] Paper towels have almost the same purposes as conventional towels, such as drying hands, wiping windows, dusting and cleaning up spills. They are most commonly known for being used in kitchen work. Because paper towels are disposable, they are often chosen to avoid the spreading of germs. Paper towels have a heavier environmental impact than conventional cloth towels, because they are not intended to be used more than once.
[0017] Paper towels are made from paper pulp. Resin size is used to improve the wet strength. Patterns of shapes such as circles or diamonds are often imprinted into the paper towels to help hold moisture. Manufacturers use the pattern of the material, microscopic spaces within the pattern, and a type of cellulose in the fibers in order to maximize absorption. Most rolls are manufactured with two layers of thin paper, but different types can have more or fewer layers. Paper towels are made from paper pulp, which is extracted from wood or fiber crops. It was first made by Arthur Scott out of a cartload full of rejected toilet paper! He perforated them into small towel-size sheets and sold them as the first ever disposable paper towels. Scott was again the first to introduce the paper towel for kitchens in 1931. It was thirteen inches wide and eighteen inches long. Tissue paper is lightweight, and made of multiple layers for better absorption. They are classified as per their key properties such as strength, absorbency, weight, and thickness. They have to be disposed, after just one use. Paper towels are packed individually and sold as stacks, or are held on a continuous roll. There are patterns and shapes often imprinted into the paper towels to maximize absorption. Most paper towels are manufactured with two to three layers of thin paper, but some types can have fewer layers.
[0018] The absorbent material preferably made of microfiber textile. One example is ShamWow™. Terrycloth can also be used.
[0019] When the absorbent capacity limit of textile is breached, or even significantly before breaching, due to capillary action, the fluid or liquid reaches the backside of the textile and comes into contact with your hand. This may be undesirable from the point of view of a fastidious housewife, a doctor cleaning up contaminated fluids, a janitor cleaning the bathroom.
[0020] Hereinafter referred to as "cleaning sandwich". The present invention improves on the prior art in providing these benefits.
[0021] Instead of a simple textile like cloth or paper towel, my invention provides a sandwich of opposing materials. One layer is hygroscopic/hydropilic material, and another layer is hydrophobic material. The one of the layers in the sandwich of materials is a liquid proof or waterproof or fluid proof layer. Fluidphilic and fluidophobic materials are used in layers to create the invention. Preferably, fluid resistant, water proof, or water repellant, or moisture bather material such as waxed paper, plastic sheeting, tarpaulin, treated canvass, or coated textiles are used.
[0022] Single layer or multiple layers can be used to create the invention.
[0023] General prior art discloses flexible planar cloths found in supermarkets and auto parts stores, for example. This produces a mixed result. Although designed to affect dirty surfaces, there are several limitations to this approach.
First, planar cloth arrangement is designed to affect dirty area. My invention is designed to affect areas, and to keep it clean.

[0024] Secondly, planar cloth arrangement is designed for wipe once. My invention is arranged such that multiple wipes are accomplished, while keeping surfaces clean. This presents unified professional trained janitorial approach.

[0025] Thirdly, for manufacturing purposes, my invention preferably consists of a rectangular area upon which repeating patterns can be expanded to cover larger and larger area. This makes ease of scalability, and ease of manufacturing. A rectangle is preferred geometric shape; although another geometric shape can be utilized. Other embodiments can be imagined such as squares and triangles.

[0026] One example of a use would be for cleaning windows or mirrors. One side of the device could be kept wet with window washing fluid and the opposite side of the device would be kept dry for drying the surface of the window or mirror.

[0027] The sandwich can be made of disposable and/or biodegradable materials.

[0028] Fourthly, my invention eliminates or reduces excess trips to clean the cloth during the cleaning time.

[0029] Fifthly, my invention additionally utilizes double sided surfaces. One specific surface is water resistant thin material. When stimulated under specific conditions, the material resists the dirty fluid that has been absorbed into the hydrophilic layer.

[0030] Sixthly, the water resistant material, are combined with absorbent material to become more effective cleaning agents. Shamwow, again, is a preferred substance that super absorbs fluids. More information on super absorbents can be googled.

[0031] My invention is rapid acting promoting cleaning device in which objective measurement of said improvement is obtained. Improvement occurs within seconds of using my invention.

[0032] The absorbent textile, preferably made of cloth or paper, are from a class of materials such as wood pulp, cotton fibers, or artificial fibers.

[0033] The cleaning device is preferably made hand-sized. Other embodiments are larger or smaller sizes. For example, a larger size could be 6 feet by 9 feet. A smaller size could be 2 inches by 2 inches.

[0034] In addition to the fluidphobic lamina as barrier protectant to the hand, the foldable layers provide additional thickness as additional protective barrier. The protection serve a role in case of contaminated or toxic fluids spill, or as temperature control in case of hot stove or radiator, or cold solids or fluids, such as ice, dry ice, or liquid nitrogen.

[0035] In cleaning, the dirt or contaminated fluid folds into the panel sections, to prevent cross-contamination into clean panels.

BACKGROUND OF THE INVENTION

[0036] An important component of disposable absorbent articles such as diapers is an absorbent core structure comprising water-swellable polymers, typically hydrogel-forming water-swellable polymers, also referred to as absorbent gelling material, AGM, or super-absorbent polymers, or SAP’s. This polymer material ensures that large amounts of bodily fluids, industrial fluids, lab fluids, household fluids can be absorbed by the article during its use and locked away, thus providing low rewet and good skin dryness.

SUMMARY OF INVENTION

[0037] It is, therefore, an object of the invention to easily create a scaleable mapguideable use once cleaning device that absorb dirty fluids without transmitting said fluid into other parts of the cleaning device.

[0038] It is, therefore, an object of the invention to provide a guide for non-experts (consumers) in the art of cleaning surfaces professionally, thoroughly, quickly, and easily.

[0039] Another object is to provide a dual-purpose cleaning device that both provides for applying and/or removing moisture or liquid matter from surfaces, AND simultaneously provide a dry material to dry off surfaces.

[0040] Another object is to create a professional janitorial speed, effectiveness, and clean surfaces in brief time.

[0041] Another object is to raise the “clean level” status in-between cleanings.

[0042] Another object is as an easily disposal convenient cleaning device.

[0043] Another object is to prevent cross-contamination.

BRIEF DESCRIPTION OF DRAWINGS

[0044] FIG. 1 is a top plan view of a preferred finished embodiment, 2, of one chemical bonded sandwiched wax/paper unit.

[0045] The top layer, textile 6 is attached to bottom layer, barrier 4 by chemical bonding means, such as glue shown in cutaway view 8.

[0046] 3 is shown in FIG. 3 as cross sectional view.

[0047] FIG. 2 is exploded cross-sectional view of scaleable therapeutic cleaning sandwich paper towel. 16 shows the two separated layers as a grouping. 17 again is the absorbent paper layer while 14 is the wax paper layer.

[0048] FIG. 3 is a cross-sectional view, wherein the laminated adhesive gluing means 8 is visible between the paper layer 6 and the wax paper layer 4.

[0049] FIG. 4 is top plan view of the stitched embodiment of the sandwiched wax/paper unit embodiment 3.

[0050] Paper layer 6, is attached to wax paper layer 4 by stitches 10. The boldly 6 is shown in FIG. 6 as cross-sectional view.

[0051] FIG. 5 is exploded cross-sectional view of cleaning paper towel as a stitched embodiment. 18 shows the two separated layers as a grouping. 19 again is the absorbent paper layer while 14 is the wax paper layer.

[0052] FIG. 6 is a cross-sectional view of said stitched towel sandwich, stitches 10 are shown in side view.

[0053] FIG. 7 is top plan view of stapled embodiment of the sandwiched wax/paper unit, 5.

[0054] Paper layer 6 is attached to wax paper layer 4 by stapled means 20.

[0055] FIG. 8 shows top plan view of triple layered laminated towel 7, with four guided panels shown on top along with partial view of the back 4 guided panels.

[0056] The top paper layer 6 is attached with bonding means 8, such as glue, to barrier layer such as wax paper 4, and in turn is bonded to bottom paper layer 24. Alphnumeric-symbols, 22 as an example, are part of self-guided sequential folding map with guidelines 28.

[0057] FIG. 9 is exploded cross-sectional view of the three layers, the 2 outer paper towels layers with wax paper barrier
inbetween, shown as grouping 50. More specifically, absorbent layer 6, fluid barrier layer 4, and absorbent layer 24.

0058] FIG. 10 is a cross-sectional view of said glued triple layer sandwich.

0059] FIG. 11 shows top plan view of triple layer sandwich, as stitched embodiment unit, 9.

0060] FIG. 12 is the exploded cross-sectional view of the three layers, with 2 outer paper layers, 6 and 24, and wax paper as fluid impervious layer barrier 4 and stitching 10, as grouping 51.

0061] FIG. 14 shows cross-sectional side view as inner structure of stitched, 10, triple layer cleaning device. The outer absorbent layers 6 and 24 with intervening impermeable layer 4.

0062] FIG. 15 shows stapled embodiment triple layer cleaning device sandwich, 30, 6 and 24 are the outer absorbent layers while 4 is the fluidophbic layer, and staples 24.

0063] FIG. 16 shows application of device 34 soaking up the fluid 32. The hand 35, is rubbing the device 34, containing the glued absorbent layer 6, and fluid resistant layer 4, over the spilled fluid 32.

0064] FIG. 17 shows the guided fold sequence map as combination with sandwiched cleaning device, 36.

0065] FIG. 18 shows the cleaning device as flipped over from original position previously in FIG. 17.

DETAILED DESCRIPTION

0066] Referring to FIGS. 1, 2, 3 and 4, showing cleaning sandwich towel, the preferred embodiment of the present invention is a paper towel material glued onto wax paper backing sheets.

0067] The hydrophilic material is attached to hydrophobic material with fastening means.

0068] The material is affixed, fastened, or attached to the other material by means of gluing, stapling, bonding, or application of heat, stitching, and ultrasonic vibration. Any other means to secure one or multiple layer of material to another can be utilized.

0069] FIGS. 5 and 6 show the wax paper sheets & the paper absorbent material.

0070] FIG. 4, shows the cloth sleeve enclosure, number 13 and 27 ready to be sealed together, by means such as glue. Preferably glue is non-toxic glue.

Water-Swelling Material, Hydrogel Forming Polymers

0071] The water-swelling material of the invention is such that it swells in water by absorbing the water, thereby forming a hydrogel. It may also absorb other liquids and swell. Thus, when used herein, ‘water-swelling’ means that the material swells at least in water, but typically also in other liquids or solutions.

0072] The coating agent is preferably hydrophilic and in particular surface hydrophilic. The surface hydrophilicity may be determined by methods known to those skilled in the art. In a preferred execution, the hydrophilic coating agents or elastomeric polymeric materials are materials that are wetted by the liquid that is to be absorbed. They may be characterized by a contact angle that is less than 90 degrees. Contact angles can for example be measured with the Video-based contact angle measurement device, Kruss G10-G1041, available from Kruss, Germany or by other methods known in the art.

0073] Special purpose sandwiches for a particular liquid commonly spilled in particular industries, home, automotive shops, and laboratories for example.

0074] It may also be preferred that the resulting water-swellable material or coated hydrogel forming polymer particles are hydrophilic. This hydrophilicity may be measured as described in co-pending U.S. patent application Ser. No. 14/331,030.

0075] The hydrophilicity boosting compositions of the present invention may also include optional ingredients such as, a carrier, surfactant and other adjunct ingredients. Suitable carriers include liquids, solids and gases. One preferred carrier is water, which can be distilled, deionized, or tap water. Water is valuable due to its low cost, availability, safety, and compatibility.

0076] Optionally, in addition to or in place of water, the carrier can comprise a low molecular weight organic solvent.

0077] Surfactants are especially useful in the coating composition as wetting agents to facilitate the dispersion of nanoparticles onto the substrate. Surfactants are preferably included when the coating composition is used to treat a hydrophilic substrate.

Preferred (Disposable) Absorbent Articles and Structures

0078] The absorbent structure of one embodiment of the invention is typically for use in disposable absorbent articles, such as preferably interlabial products, sanitary napkins, panty liners, and preferably adult incontinent products, baby diapers, nappies and training pants.

0079] Preferred disposable absorbent article herein are sanitary napkins, panty liners, adult incontinence products and infant diapers or training or pull-on pants, whereby articles that serve to absorb spills liquids, e.g., adult incontinence products, diapers and training pants are most preferred articles herein.

0080] Preferred articles herein have a topsheet and a backsheet, which each have a front region, back region, and fluid barrier positioned herein between. The hydrophobic structure of the invention is typically positioned in between the topsheet and backsheet. Preferred backsheets are vapour pervious but liquid impervious. Preferred topsheet materials are at least partially hydrophilic, preferred are also so-called apertured topsheets. Preferred also that material is ShamWow™.

0081] These preferred absorbent articles typically comprise a liquid impervious (but preferably gas or water vapor pervious) backsheet, a fluid pervious topsheet joined to, or otherwise associated with the backsheet, and the absorbent structure according to the present invention positioned between the backsheet and the topsheet. Such articles are well known in the art and fully disclosed in various documents mentioned throughout the description, e.g., in EP 752 832.

0082] While the above description contain many specificities, these should not be construed as limitations on the scope of the invention, but as exemplifications of the presently preferred embodiments thereof. Many other ramifications and variations are possible within the teachings of the invention. For example, the sandwich can be made part of a household cleaning cloth, industrial use, as cleansing wipes, and so on.

0083] Thus the lastout boundary of the invention should be determined by the appended claims and their legal equivalents, and not by the examples given.

0084] The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numeri-
cal values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as “24 inches” is intended to mean “about 24 inches”.

All documents cited in the Detailed Description of the invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to the term in this document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

1. A sandwich which comprises of fluid resistant barrier with fluid absorbent material.
2. A cleaning device comprising of fluid resistant lamina and fluid absorbent lamina.
3. A cleaning device combining fluid resistant layer and fluid absorbent layer.
4. A cleaning device sandwich, with a fluid resistant layer sandwiched inbetween fluid absorbent layers.
5. The above in which the fluid resistant material is made of wax paper, and the fluid absorbent material are made of woodpulp fiber.
6. A sandwich according to claim 6 in which additional materials are hydrocarbon coated paper, and paper towel material.
7. A sandwich according to claim 1, 2, 3, 4, 5, 6, and 7 in which the attaching means are glue.
8. A sandwich according to claim 8 in which the attaching means is stitching.
9. A sandwich according to claim 9 in which the attaching means is staples.
10. A sandwich according to claim 1 in which additional materials are composing of one or more of a variety of water resistant cloths, such as canvas.
11. A sandwich according to claim 1 in which additional materials composing of silicon impregnated cloth or paper.
12. A sandwich according to claim 1 in which additional materials composing of nylon.
13. A sandwich according to claim 1 in which additional material is Gore-tex.
14. A sandwich according to claim 1 in which additional material is thin rubber sheet.
15. A sandwich according to claim 1 in which a material is impregnated with fluid repelling chemical.
16. A sandwich comprising a square or rectangular surface area within which is combined a variety of materials for cleaning purposes that includes claims 2, and/or 3, and/or 4, and/or 5, and/or 6, and/or 7.
17. A sandwich comprising a square flat container of claim 1 within which is included a variety of materials for therapeutic cleaning purposes in which the absorbent material is Shamwow™.
18. Claim 1 or claim 8 in which the variety of materials are layered.
19. Claim 1 in which the surface have 2, 4, 6, 8, or 16 panels.
20. Claim 1 in which the total device surface area measures 18" by 10".
21. Claim 1, 8, or 20 in which total device surface area measures 5"x9", handsized.
22. Claim 1, 8, or 20 in which total device surface area measures 9.5"x9"
23. Claim 1, 8, or 20 in which application is to discard after application.
24. In claim 1, the cleaning device is handsized, or foldable into handsized portions.
25. A cleaning device sandwich, with a fluid resistant layer attached to a fluid absorbent layer.
26. A cleaning device sandwich, with a fluid resistant layer attached to two fluid absorbent layers.
27. A cleaning device sandwich, with two fluid resistant layers attached to three fluid absorbent layers.
28. A cleaning device sandwich, with a fluid resistant textile layer attached to a fluid absorbent microfiber layer.
29. A cleaning device sandwich, with a fluid resistant chemical layer attached to a fluid absorbent microfiber layer.
30. A cleaning device sandwich, with a fluid resistant chemical layer attached to a fluid absorbent chemical layer.
31. A cleaning device sandwich, with a fluid resistant microfiber layer attached to a fluid absorbent cloth layer.
32. A cleaning device sandwich, with a fluid resistant microfiber layer attached inbetween to two fluid absorbent cloth layers combination.
33. A cleaning device sandwich, with a fluid resistant microfiber layer attached inbetween to two fluid absorbent cloth layers combination.

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