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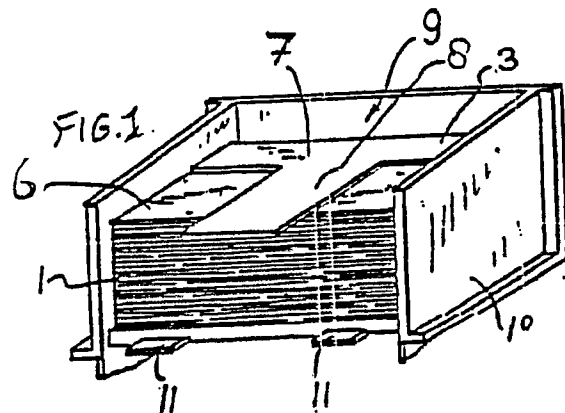
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54 **A packet of toweling for single use adapted to be dispensed for hand drying.**

57 A packet of toweling for single use adapted to be dispensed for hand drying from an apparatus having a supply chamber from which the toweling is manually withdrawn for use and a storage roller operable in response to the withdrawal of toweling to roll up and store the used wet toweling, said packet comprising a zigzag folded, continuous web of paper material extending between first and second web ends, said paper material having a reinforcement comprising a fabric of synthetic threads for providing said web with a tensile strength sufficient to prevent tearing during withdrawal, use and rolling up, said web having an adhesive area on the exposed surface adjacent one of said ends of which an additional, similar packet may be joined to said packet, said adhesive area having a removable cover. According to the invention said reinforcement threads being disposed in a grid-like pattern with the threads extending in directions longitudinally (13) and transversely (14) of the paper web(2), said longitudinally extending threads (13) being more closely spaced than said transversely extending threads(14). In a preferred embodiment the removable paper cover of the adhesive area comprising a first surface portion- (6) having a low adhesive coating in contact with the adhesive area(3) and an integral pull tab (8)-

extending beyond one vertical face of said packet and adapted to permit said paper cover(4) to be pulled out from between this packet(1) and a similar packet (1) disposed with the other of its said ends in contact therewith.



A packet of toweling for single use adapted to be dispensed for hand drying

The invention relates to a packet of toweling adapted to be dispensed for hand drying according to the preamble of the main claim.

A packet of this type is known from EP-A-0.241.095.

The objects of the invention are to maximise the properties of use on the one hand, such as assuring both high tensile wet strength and high liquid absorption and avoiding delamination after hand drying, and to facilitate the adding and coupling of refill packets to the packet already in use in the apparatus on the other hand .

These objects are reached by the invention by the measures described in the characterizing part of the main claim and of those of the sub claims, which describe preferred embodiments. The invention will now further be described with reference to the accompanying drawing of some preferred embodiments.

Fig. 1 is a perspective view showing the interior of the supply chamber of a dispensing apparatus including the toweling packet usable therein.

Fig. 2 is a perspective view of a removable paper cover used on the towel packet shown in Fig. 1.

Fig. 3 is a perspective view showing the construction of a preferred embodiment of the reinforced paper towel used in the present invention.

Referring to Figs. 1 and 2, in a preferred embodiment, the upper surface of the end fold of every packet 1 of toweling product 2 in a supply chamber 10 having a bottom 11 of a (not shown dispenser) is provided with a layer or band 3 of a suitable adhesive. The adhesive band 3 may be applied by means of a hot melt applicator (not shown) or any other suitable means. A T-shaped release paper cover 4 is placed over the adhesive layer 3 on the top fold of the packet 1 to be temporarily secured thereto. The cover 4 is folded back upon itself about a fold line 5 such that a lower first surface portion 6 overlies and is in contact with the adhesive layer 3. The upper folded portion 7 includes the pull tab 8 which extends outwardly beyond the vertical front face of the packet 1. The fold line 5 is disposed to lie along the rear edge of the paper cover 4 farthest from the vertical front face of the packet 1. After a similar packet 1 (not shown) is inserted into the opening 9 of the supply chamber 10, the pull tab 8 is grasped by hand and slowly pulled out, so that the cover 4 is stripped from the adhesive 3 on the top fold of the lower packet 1, beginning at the fold line 5 at the rear edge and proceeding forwardly. The uncovered adhesive layer 3 then attaches di-

rectly to the bottom fold of the similar refill packet 1 lying thereover thereby providing a connection for a continuous web of product 2. The adhesive connection may be enhanced by simply pressing the upper packet 1 downwardly against the lower. The underside of the lower first surface portion 6 of the cover 4 is preferably coated with the release agent to facilitate its stripping from the adhesive layer 3. A preferred release agent comprises a silicone coating.

Referring to Fig. 3, a preferred embodiment of the reinforced paper web 2 includes a reinforcing fabric 12 of synthetic threads, such as polyester, disposed on a grid-like pattern comprising longitudinally extending threads 13 and transversely extending threads 14. The grid-like pattern of reinforcement provides strength in all directions in the plane of the web 2 to provide a tensile strength which is sufficient to prevent tearing during manual withdrawal of the web from the dispenser, during use in drying the hands, and when subsequently automatically rolled up on the storage roller of the dispenser(not shown). The web 2 is preferably formed by placing the synthetic fabric 12 between two layers 15 of preferably white kraft tissue paper and running the laminate 2 of paper 15 and fabric 12 between the nip of a pair of heating and pressurizing rolls (not shown). The synthetic fabric 12 is preferably made with a more closely spaced pattern of longitudinally extending threads 13 and fewer or less closely spaced transversely extending threads 14. Also the longitudinally extending threads 14 may be of a slightly larger section and, therefore, individually stronger than the threads 13. For example, the fabric 12 may comprise a pattern of 3 longitudinal threads per centimeter of web width and 0.8 transverse threads per centimeter of web length. In one preferred embodiment, the threads 13 are of one 167 Detex (167 g/10.000 m) and the threads 14 are of 140 Detex(140g/10.000 m). The resulting tensile strength of the fabric 12 is more than four times greater in the longitudinal direction (15daN/5cm) than in the transverse direction (3,4daN/5cm). Elasticity at rupture in longitudinal direction is about 32 % and in transverse direction about 26 %. The fabric has been impregnated with a ethylene vinylacetate adhesive.

The preferred adhesive for the band 3 is a mixture of hydrocarbons, waxes and resins. The color of the adhesive is at maximum 0,5 according to the ASTM standard. The softening point of the glue lies between 72 and 78 degrees centigrade. The viscosity measured at 130 degrees centigrade lies between 5000 and 7000 milli-poise/second.

Claims

1.) A packet of toweling for single use adapted to be dispensed for hand drying from an apparatus having a supply chamber from which the toweling is manually withdrawn for use and a storage roller operable in response to the withdrawal of toweling to roll up and store the used wet toweling, said packet comprising a zigzag folded, continuous web of paper material extending between first and second web ends, said paper material having a reinforcement comprising a fabric of synthetic threads for providing said web with a tensile strength sufficient to prevent tearing during withdrawal, use and rolling up, said web having an adhesive area on the exposed surface adjacent one of said ends by which an additional, similar packet may be joined to said packet, said adhesive area having a removable cover, characterized in that said reinforcement threads being disposed in a grid-like pattern with the threads extending in directions longitudinally (13) and transversely (14) of the paper web(2), said longitudinally extending threads (13) being more closely spaced than said transversely extending threads(14).

2.) A packet of towelling according to claim 1 characterized in that said paper material(2)-comprises two plies of kraft paper tissue (15)having said fabric reinforcement (12) disposed there in between,said threads (13,14) are spaced to provide a web tensile strength in the longitudinal direction which is at least four times the tensile strength in the transverse direction.

3.) A packet of towelling according to claim 1-2, characterized in that the fabric has 3 warp threads(13) and 0,8 woof threads (14)per centimeter, of which the warp threads (13)are 167 Detex(i.e.167 gram/10000 meter) and the woof threads (14)are 140 Detex(i.e.140 gram/10000 meter),

4.). A packet of towelling according to claim 1-3 , characterized in that the tensile strength of the fabric (12) in longitudinal direction being 15 daN/5 centimeter and in transverse direction 3,5 daN/5 centimeter, whereas elasticity at rupture in longitudinal direction is about 32 % and in transverse direction about 26 %.

5. A packet of toweling according to claim 1-4, characterized in that the synthetic threads (13,14)-comprise polyester fibers, which threads(13)have been impregnated with an ethylene vinylacetate adhesive.

6. A packet of toweling according to claim 1, characterized in that the removable paper cover of the adhesive area comprising a first surface portion(6) having a low adhesive coating in contact with the adhesive area(3) and an integral pull tab (8)extending beyond one vertical face of said pack-

et and adapted to permit said paper cover(4) to be pulled out from between this packet(1) and a similar packet(1) disposed with the other of its said ends in contact therewith.

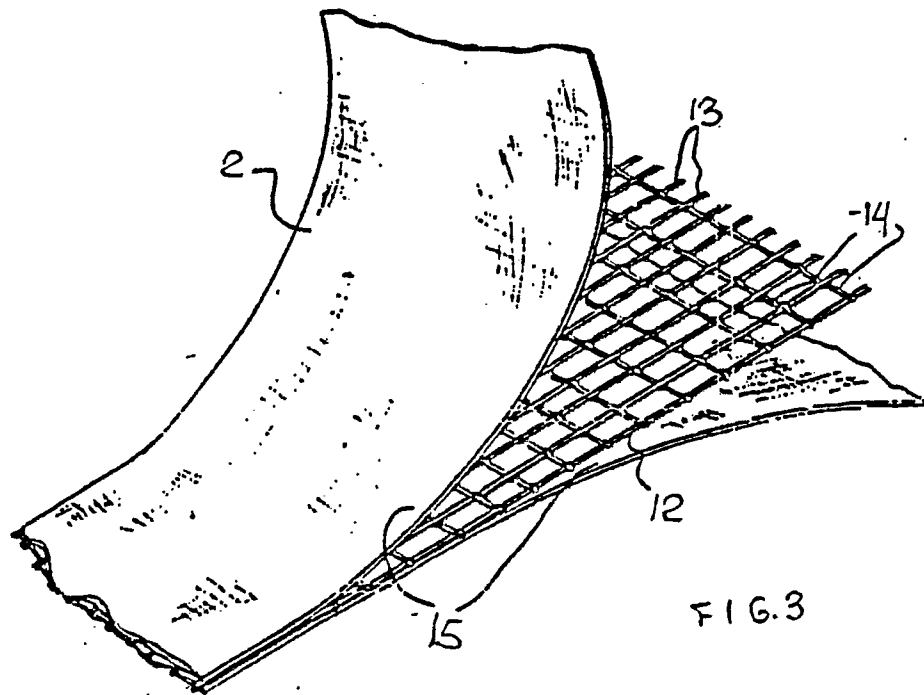
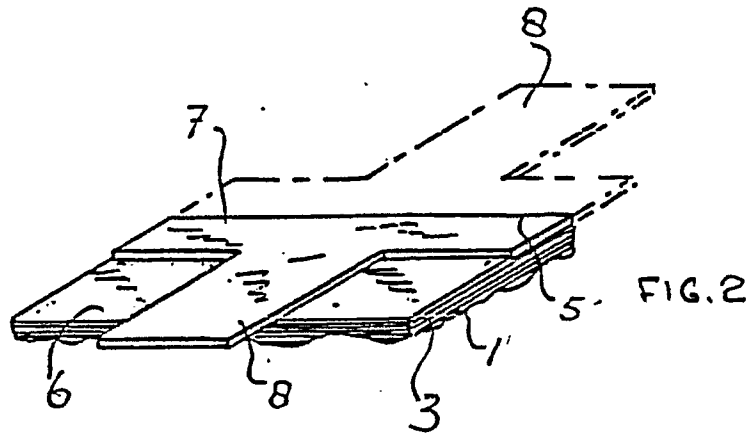
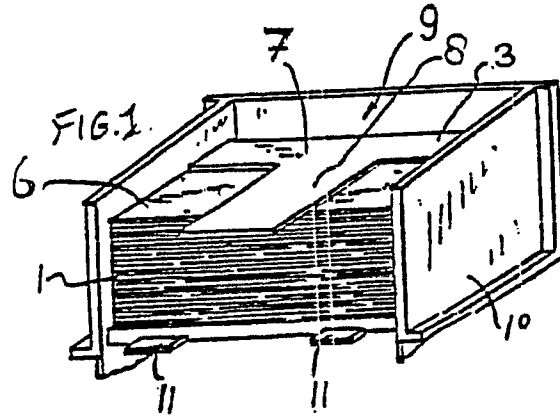
6.) A packet of towelling according to claim 5, characterized in that said first surface portion(6) of said paper cover(4) overlies substantially the entire adhesive area(3).

7). A Packet according to claim 5-6, characterized in that said pull tab (8)comprises a folded portion(7) of said cover (3) extending from a fold line (5) between said tab(8) and said first surface portion(6), said fold line(5) lying along the edge of said cover(4) farthest away from said one vertical face.

8-A Packet according to claim 5-7, characterized in that said pull tab (8)comprises a T-shaped release paper cover (4) folded on itself, the branch (8) of the T protrudes from the packet 1 and forms a pull tab (8) for removal from in between two stacked packets (1,1).

9.) A packet of towelling according to claim 5-8, characterized in that the low adhesive coating(3) on said first surface portion comprises a release agent.

10.) A packet of towelling according to claim 5-9, characterized in that said release agent comprises a coating of silicones.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 20 1008

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,D	EP-A-0 241 095 (WILLIAMS) * Column 3, lines 25-50; figure * ---	1	A 47 K 10/36
Y	US-A-3 686 062 (ROMANIN) * Column 3, lines 47-75; column 4, lines 1-17; figures 1-4 * ---	1	
A	US-A-2 809 082 (MARCUSE) * Column 5, lines 51-60; figure 1 * ---	1,6	
A	US-A-3 661 700 (ZILIO) * Column 1, lines 27-67; column 2, lines 41-47; column 3, lines 17-24; column 4, lines 5-10 * ---	1	
A	US-A-1 866 513 (BALLARD) * Page 1, lines 61-60; page 2, lines 1-105; figures 1-5 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 47 K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13-12-1989	Examiner SCHOLS W.L.H.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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