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DISH TOWEL

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This invention relates to a novel fabric intended primarily for use as dish towels but it may be used to clean windows, polish silverware and for other purposes.

Dish towels as used for many years have been made of cotton fibers or of linen fibers. Linen towels are more expensive but are generally preferred because they remove the moisture from glasses, silverware and dishes more readily than do cotton towels, leave less lint, and polish glassware better, but linen is less flexible than cotton and therefore a linen towel will not fit the interior of a glass as well as a cotton towel.

The present invention resides in a dish towel that is formed primarily of cotton fibers but which is superior to an all cotton towel or a linen towel in its ability to dry and polish glassware, dishes and silverware.

These desirable properties are imparted to the dish towel herein contemplated by making the yarn of which the fabric forming the toweling is woven, primarily of cotton fibers but which cotton fibers have mixed therewith a substantial amount of asbestos fibers. In this manner the asbestos fibers which absorb moisture better than cotton fibers, and have superior polishing properties to cotton fibers, are embodied in the fabric as an integral part thereof.

An all asbestos fabric would have good polishing and moisture absorbing properties but would be too coarse and heavy to form a satisfactory dish towel, and would be unsatisfactory for this use for other reasons.

We have found that a fine woven fabric formed primarily of cotton fibers but having a substantial amount of asbestos fibers intermixed with the cotton fibers forming the yarn of the fabric makes a dish towel that is superior to an all cotton dish towel or a linen dish towel of the same character of weave.

The present invention therefore contemplates a woven fabric formed of closely woven warp and weft threads that are made of a mixture of cotton and asbestos fibers, the amount of asbestos fibers used being substantial but of less weight than the cotton fibers used. The asbestos and cotton fibers should be thoroughly mixed so that the asbestos fibers will be uniformly distributed and well anchored within the yarns forming the fabric and the wicking action of such asbestos fibers will carry moisture quickly into the interior of the fabric, and also so that these firmly anchored asbestos fibers will act as a mild abradant, to thereby impart to the toweling good drying and polishing properties.

The amount of asbestos fibers intermixed with the cotton fibers may be varied from say 10% to 50% by weight, but about 20% asbestos fibers and 80% cotton fibers by weight is believed to produce the most satisfactory dish toweling. This

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mixture is preferably used in the yarn for both the warp and weft of the fabric, and the fabric is preferably made of fine yarns that are closely interwoven.

It is found that if the yarns formed of a mixture of asbestos and cotton fibers are coarse or have a low twist, the asbestos fibers which are much shorter than the cotton fibers will not be firmly anchored in the fabric and excessive linting will occur. On the other hand if the fabric is formed of fine closely woven yarns the asbestos fibers will be firmly anchored in place and very little linting will occur.

The asbestos fibers are preferably relatively long and should be well cleaned so that each fiber will be well anchored in place by the twisting of the yarn which, as above stated, should be fine and have a relatively high twist to firmly anchor both the cotton and the asbestos fibers in place. The asbestos and cotton fibers may be thoroughly mixed by using the usual cotton fiber mixing equipment. The mixed fibers are then carded and drafted to form roving that is spun into fine yarn as is usual in producing fine cotton yarn, and such yarn may be used to produce both the warp and weft of the present fabric.

It is known that asbestos fibers absorb moisture better than either cotton or linen fibers and also that asbestos fibers have a mild abrasive action. Both of these properties of asbestos fibers are utilized in the construction of the present invention, and if four or five times as much cotton fiber as asbestos fiber is used in the present fabric the dish towel may be as fine and soft as an all cotton dish towel made of fine closely woven cotton yarns, but will remove moisture from the surface being wiped more quickly than an all cotton or linen towel and will possess excellent polishing properties due to the mild abrasive action of the asbestos fibers that are interspersed throughout the fabric.

While the proportion of cotton and asbestos fibers may be varied to a considerable degree as may also the size of the yarns used and closeness of the weave employed in producing the dish towel contemplated by the present invention, the following is considered a good practical construction.

Table I.—Asbestos—cotton fabric

Warps per inch	40
Wefts per inch	31
Size of yarn in warp—yds. to the lb.	7000
Size of yarn in weft—do	7000
Cotton content—per cent	75–80
Asbestos content (high grade)—do	20–25
Weight—ounces per square yard	5.3
Thickness[1]—inches	.0286
Stiffness—milligrams to bend—warp	10.9
Stiffness—milligrams to bend—weft	6.1

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This analysis was made on material after it had been scoured and bleached. The stiffness was measured on the Gurley stiffness tester, and the figures represent the number of milligrams to bend a standard size sample 1" wide and 3" long. The thickness was measured while the fabric was under a pressure of .1 pound per square inch.

In the following table the above fabric of Table I is compared with an all cotton fabric and with an all linen fabric:

Table II.—Comparison of properties

	I Cotton	II Linen	III 20-25% asbestos 75-80% cotton
Weight.....ozs./sq. yd..	5.0	8.3	5.3
Thickness [1].....in..	.0287	.0270"	.0286"
Percent porosity.....	84.4	72.3	85.3
Air permeability.....	59	18	112
Stiffness—warp.....mg..	12.6	48	10.9
Stiffness—weft.....mg..	7.0	32	6.1

[1] Pounds per square inch.

The per cent porosity in this table shows the relation between the solids and voids in the fabric and in each fabric the voids greatly exceed the solid portions. The air permeability is expressed in the cubic feet of air that passed through a square foot of the fabric in one minute under .5" water pressure. The table shows that the stiffness of the present fabric is slightly less than that of the all cotton fabric and much less than that of the linen fabric, and therefore the present fabric will conform better to the object being wiped than either of the other fabrics.

The excellent polishing properties of the towel of the present invention may be readily observed by using the three dish towels of the construction of Table II and employing the first towel, then the second, and then the third to dry glassware after it has been washed, and noting the superior polish that is imparted to the glassware by the asbestos-cotton towel over that which is imparted by either the cotton or the linen towel.

The above mentioned absorbing or wicking action of the asbestos fibers of the present towel will cause the present towel to remove moisture from the surface being wiped more quickly and more completely than will either the cotton or the linen towel of Table II, as will be apparent from the following table.

Table III.—Towel drying properties

	I Cotton	II Linen	III 20-25% asbestos 75-80% cotton
1. Drying time (see Note 1).	118 secs.....	136 secs.....	113 secs.
2. Rating of polish (see Note 2).	2nd.....	3rd.....	1st.
3. Surface moisture (see Note 3).	0.645 g.....	0.523 g.....	0.500 g.
4. Time for water film to evaporate (see Note 4).	45 secs.....	47 secs.....	41 secs.

Note 1—Six glasses washed in warm water and soap—no rinsing—wipe at once.

Note 2—Glasses washed in warm water and soap—no rinsing—soap solution allowed to dry on glasses—polish with towel and rate according to quality of cleanliness and polish.

Note 3—Towels soaked in warm water—wrung out thoroughly by hand—laid out on smooth surface (glass)—blotting paper (5" x 5") placed on wet towel under 6 grams per square inch pressure for 30 secs.—moisture picked up by blotter determined.

Note 4—Towels soaked in warm water—wrung out thoroughly by hand—glass surface wiped with wet towel—measured time for water film to disappear from 5" x 5" area.

Dish towels constructed in accordance with the present invention will resemble closely in appearance and feel closely woven all cotton dish towels, but will remove moisture more quickly and impart a better polish to the surface being wiped than will all cotton dish towels of similar weave.

Having thus described our invention, what we claim and desire to protect by Letters Patent is:

1. A dish towel having good drying and polishing properties, comprising a fabric formed of closely woven warp and weft threads that are made of a mixture of cotton and asbestos fibers, the asbestos fibers being in excess of 10 per cent and less than 50 per cent of the weight of the towel and firmly anchored in the fabric where they act to wick moisture quickly into the interior of the fabric and as an integral mild abradant adapted to polish the surface being wiped.

2. A dish towel having good drying and polishing properties, comprising a fabric formed of closely woven warp and weft threads which threads are made of a mixture of approximately 80 per cent cotton fibers and 20 per cent asbestos fiber by weight, the asbestos fibers being firmly anchored in the fabric where they act to wick moisture quickly into the interior of the fabric and as an integral mild abradant adapted to polish the surface being wiped.

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