March 6, 1951 W. D. ELLIS 2,544,223

LAUNDRY NET

Filed Sept. 29, 1948

FIG. 1.

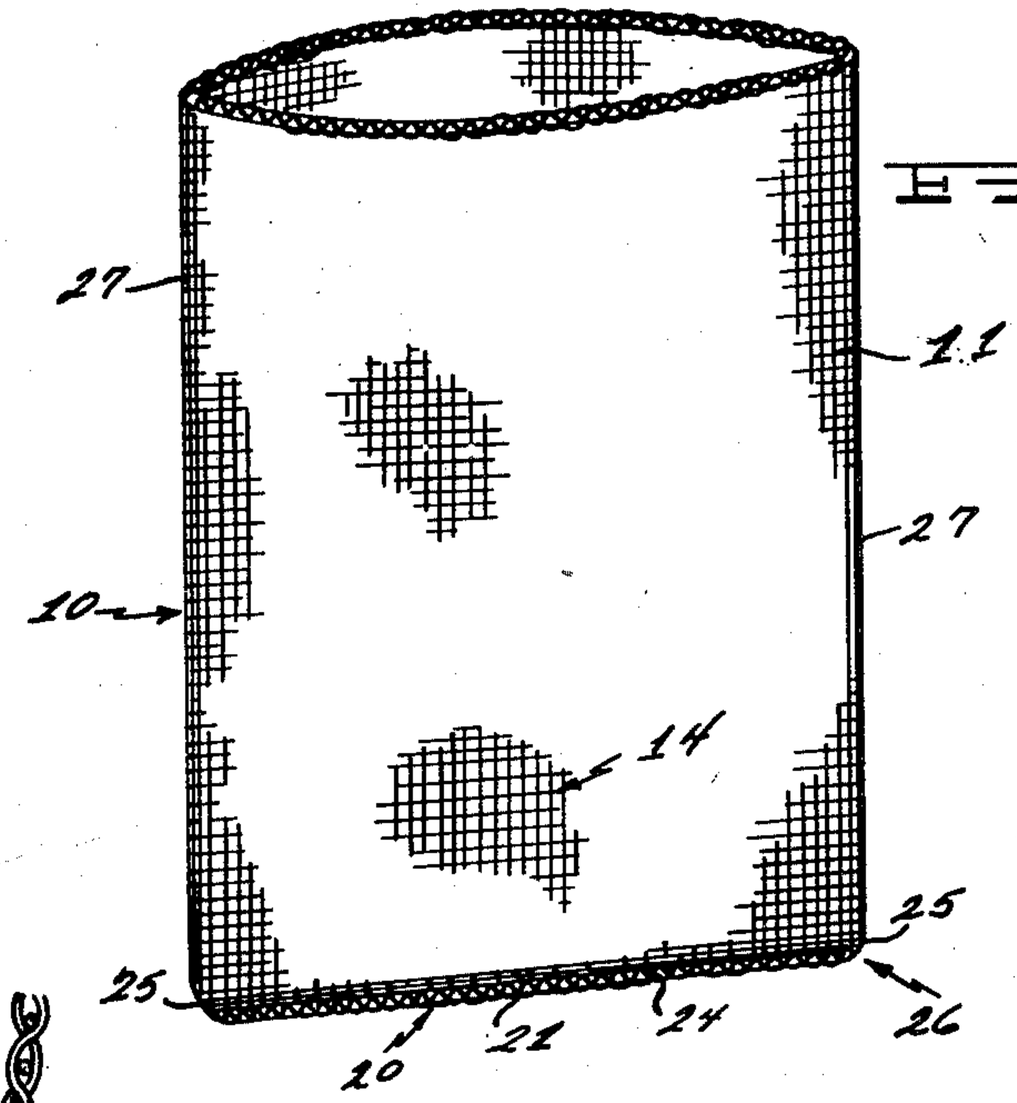

FIG. 4.

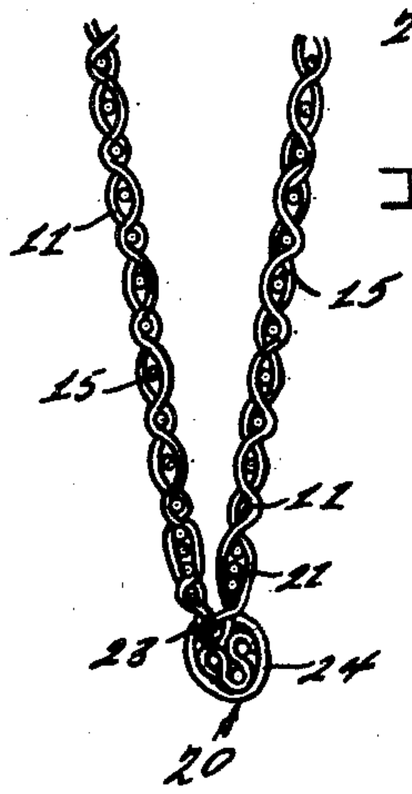

FIG. 2.

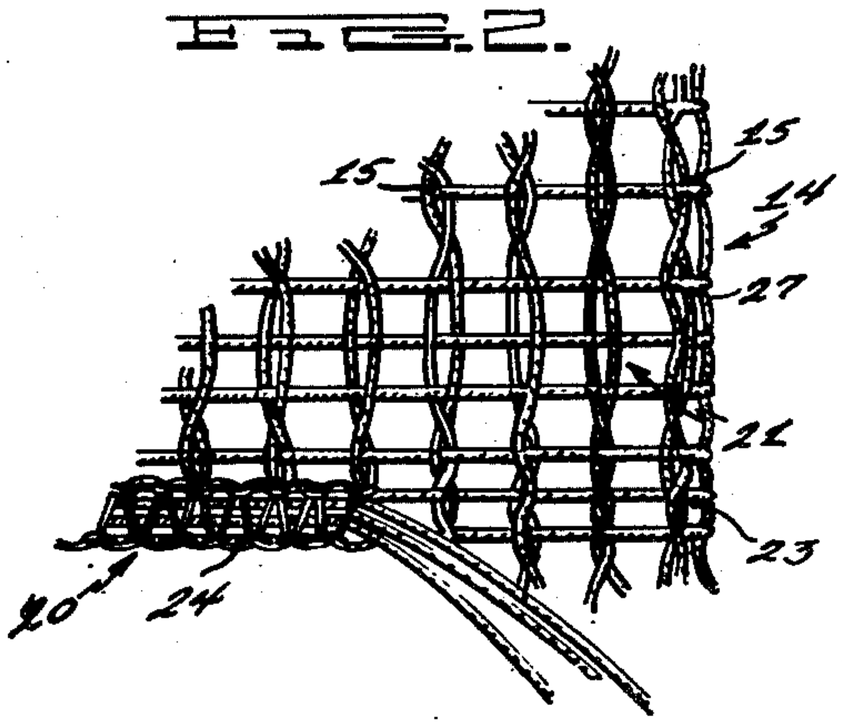

FIG. 3.

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LAUNDRY NET

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4 Claims. (Cl. 139—389)

1

This invention relates to improvements in laundry nets utilized for the enclosure of individual bundles of washable articles during commercial laundering operations, and has particular reference to a laundry net wherein both cotton and nylon materials are utilized in the formation of the net structure.

Laundry nets deteriorate rapidly with repeated laundering operations, wherein the nets are exposed to alkali and acid washing reagents. Accordingly, the expense of net maintenance, replacement and supply is an important financial consideration. It is well known that various types of treated materials, such as rubberized strands, have been substituted for the conventional twisted cotton strands commonly used in weaving laundry nets, in an effort to develop a wear-resistant stable open mesh laundry net. However, the expense of the specially formed cord materials is excessive. Also, the use of nets made from heavy cord materials is impractical, for it is desirable that a laundry net be light in weight so that agitation of the net and its contents during a laundering operation will be facilitated.

It has been suggested heretofore that strands of pure nylon be employed in the weaving of laundry nets with the result that a strong wear-resistant net of desirable weight before and after immersion in laundering solutions was provided. However, an open mesh net made solely from smooth surfaced strands such as nylon strands will distort, the individual strands moving freely relative to each other with consequent deterioration of the required open mesh net structure and uniform porosity characteristic of the net. To counteract this deficiency, it has been suggested that nylon strand laundry nets be woven of the finest mesh possible consistent with the net porosity requirements. This suggested expedient has not been put into wide practice due to the expense involved, and the fact that disadvantageous strand slippage resulting in mesh distortion was not eliminated.

It is an object of this invention to provide an improved laundry net of nylon and cotton strands capable of withstanding repeated immersion into laundry cleansing agents without harmful deterioration of the structure of the net.

A further object is to provide a laundry net which is simple and inexpensive to construct and which embodies improvements in constructional details facilitating the manufacture.

Yet another object of the invention is to provide a laundry net capable of maintaining a uniform open mesh weave without weave spreading notwithstanding long abusive treatment of the net.

2

Still another object of the invention is to provide a laundry net of tubular structure having novel reinforced edges formed integral with the net body.

With these and other objects in view which may be incident to the improvements set forth hereinafter, the invention consists in the methods and article of manufacture disclosed and claimed with the understanding that the details of the invention may be varied without departing from the spirit and scope of the appended claims.

In the drawings:

Figure 1 is a perspective view of the laundry net showing upper, lower and side portions;

Figure 2 is an enlarged fragmentary elevation of a portion of the bottom of the laundry net;

Figure 3 is an enlarged sectional detail through one of the strands; and

Figure 4 is an enlarged view in vertical section through the lower edge of the bag.

In its broadest application, this invention comprises a laundry net which is light in weight, durable, and capable of undergoing repeated laundering operations without loss of the original open mesh configuration of weave and porosity characteristic of the net. This is accomplished by employing a composite strand which is formed of nylon and cotton threads twisted together so that the exterior of the strand is at least partially composed of cotton threads. Conventional weaves may be used in forming the net. A plain weave or a leno weave is employed advantageously, or a combinatin of plain and leno weaves may be used. The use of composite strands formed of nylon and cotton threads or filaments in weaving the net eliminates objectionable "weave spreading," whereby a greater stabilized net porosity characteristic is accomplished.

Referring to the drawings, the invention comprises a laundry net as indicated by the numeral 10 of Figure 1, wherein composite strands 11 consisting of plied cotton and nylon threads 12 and 13 respectively, are woven in an open mesh weave 14, such as a leno weave, to form the body of the net.

The composite strands 11 may be plied in any convenient manner; for example, the strand 11 may be formed by twisting two threads of nylon into a single strand, the nylon strand being plied with a two thread cotton strand to form the composite strand. A second type of composite strand

may be made by plying together two single threads of cotton and nylon.

The nylon thread 13 may comprise either continuous nylon filaments or cut spun filaments. In the practical application of the invention, it has been found that two hundred and sixty denier filament nylon thread with seventeen filaments of fifteen denier each may be employed advantageously in forming the nylon thread 13, the thread 13 being twisted with a Number Twelve cotton thread to form the composite nylon-cotton strand 11.

The most advantageous combination is attained if the cotton and nylon threads 12 and 13 are plied together in the ratio of two of cotton to one of nylon, it being understood, however, that other ratios of nylon to cotton in forming the strand may be satisfactory, depending on the intended use of the net.

The nylon thread component supports and strengthens the cotton thread, providing a strong net framework of nylon which considerably strengthens and minimizes stretching and shrinkage of the net. The cotton thread component, on the other hand, provides a surface capable of securing the nylon thread against slippage, overcoming the lack of cohesion or resistance to relative movement of adjacent nylon threads or filaments. Thus, maintenance of the uniformity of the open mesh weave is accomplished by stabilization of the relative position of the composite strands at the strand interstices 15. Diminution of the open mesh characteristic of various portions of the net during use as by narrowing or closing of the mesh, is avoided.

The invention further provides a novel net body construction having reinforced edges whereby deterioration of the net through excessive wear is minimized. As shown in Figure 1, the body of the net 10 may be woven in a tubular medium leno weave, having a bottom edge 20 comprising relatively tightly woven reinforcing bands 21, which bands are interwoven to form a seam 22 joining the opposed net walls. Alternatively, the body may be woven in a uniform open mesh weave having a seam and bead substantially as shown. The bands 21 are extended as a single sheet 23 of double plain weave, which is gathered or rolled back upon itself to form a bead 24 adjacent the seam 22 at the point of junction of the opposed reinforced bands in the walls of the net. The bead 24 may be secured firmly in place by stitching or otherwise. The plain woven bands 21 and the bead 24 support and protect the characteristic open mesh weave of the net walls against strain and consequent mesh distortion, as well as protecting the bottom edge of the laundry net against wear. Incidental to the formation of the net lower edge 20, it is preferred to turn the corners 25 of the bead 24 upward as at 26, thereby rounding off the normally square pocket formation of the net bottom. These rounded corners 25 of the net bottom minimize the accumulation of refuse in the net bottom, as well as reduce chafing of the net during the laundering process.

To further strengthen the net, the two side edges 27 extending longitudinally of the net are reinforced by a plain woven strip formed as a part of the body of the net, in continuation of the leno weave portion. The reinforced edges 27 provide additional strength where lateral stress on the net is most likely to occur and form protective edges at the points on the net most likely to be subjected to chafing.

It is to be noted that the purposes and object of

the invention are directed specifically to the provision of laundry nets having a uniform open mesh weave stabilized against wear and mesh distortion. While for purposes of description, the invention has been described with reference to specific embodiments thereof, it should be understood that varying types of weaves and proportions of nylon to cotton in forming the threads may be employed without departing from the spirit of the invention, as defined in the appended claims:

I claim:

1. In a woven laundry net for containing washable articles during laundering operations, a net body having composite strands formed from plied threads of cotton and nylon, the threads being twisted together so that exterior surfaces of the said strands consist principally of cotton threads, all said strands being woven in a substantially uniform open mesh plain weave, the said net body so formed being free from strand slippage caused by distortional forces, and a closure for the body formed from threads of the net body woven in a closed mesh plain weave.

2. A woven laundry net for containing washable articles during laundering operations composed of composite strands comprising plied cotton and nylon threads in the ratio of two threads of cotton to one thread of nylon twisted so that exterior surfaces of the said strands consist principally of cotton thread, the strands so formed having non-slip qualities sufficient to withstand excessive distortional forces and to maintain original weave of the net.

3. A woven laundry net for retaining washable articles during laundering operations comprising a net body having composite strands, each consisting of plied cotton and nylon threads twisted to form an individual strand, exterior surfaces of the said individual strand consisting principally of cotton threads, the strands woven in an open mesh leno weave to form the body, composite strands forming the net body resisting displacement relative to each other to retain the open mesh weave free from weave spreading and consequent loss of open mesh net configuration during a laundering operation, and a closure for a net body including a seam formed from strands comprising the net body weave, the said seam being woven in a close mesh weave and folded upon itself to form a bead.

4. A woven laundry net for containing washable articles during laundering operations composed of composite strands, each strand being twisted from plied cotton and nylon threads, the exterior section of the strands having sufficient cotton thread exposed to provide a surface capable of non-slip friction engagement with the surfaces of other like strands.

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