

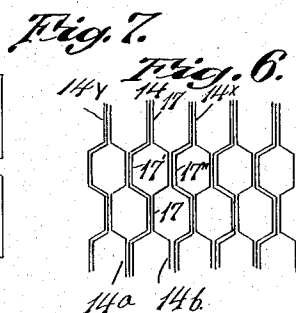
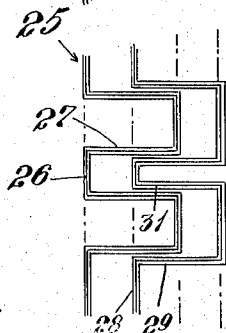
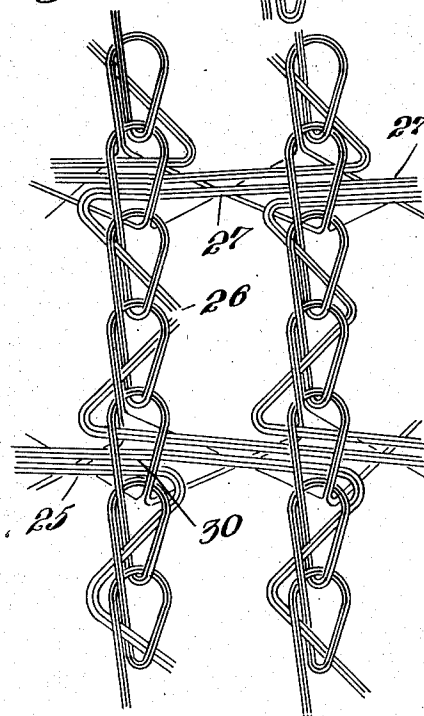
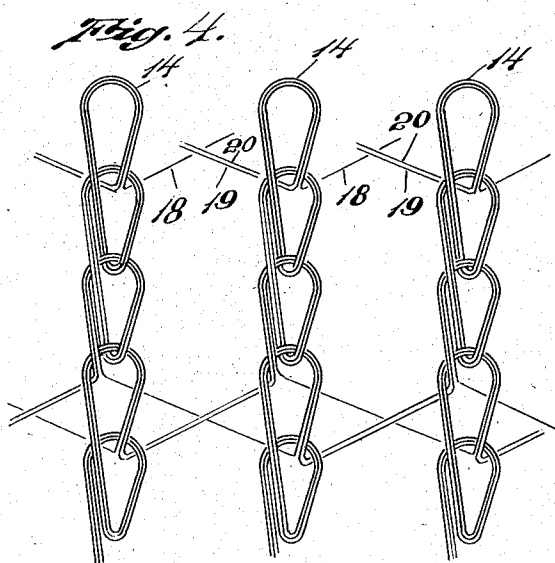
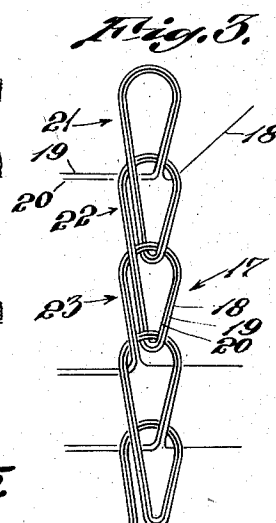
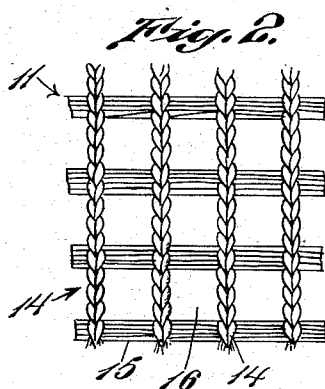
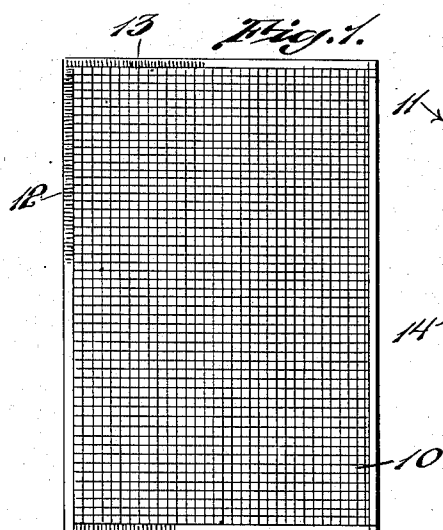
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2,263,787

LAUNDRY BAG

Filed June 24, 1941



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UNITED STATES PATENT OFFICE

2,263,787

LAUNDRY BAG

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9 Claims. (Cl. 66—170)

This invention relates to an open mesh laundry bag into which clothes are put for washing.

In the washing of clothes, a certain weighed amount of the soiled clothes is placed in an open mesh bag and is then moved by mechanical means, such as large paddles, through a washing solution, and a certain beating action also occurs so that the dirt will be extracted from the soiled clothes. This action to which the bag containing the laundry is subjected is a rather rough treatment upon the bag. The weight of the clothes causes strains to occur, and it is found that after a certain number of uses, the bags tear or rip or become so ruptured that they cannot longer be used. The bags usually used for this sort of work are of a leno weave, a rather loose weave in which the threads which go to make up the fabric may readily shift one with relation to the other; and it so happens that when a rupture occurs, a quick enlargement of that hole follows, due to ravelling, so that the bag becomes useless for further laundry washings.

One of the objects of this invention is to provide a laundry bag which will be stronger and last longer than laundry bags now in use.

Another object of the invention is to provide a weave by which the threads which go to make up the fabric cannot shift one with relation to the other so as to cause wear or so as to permit of enlargement of a rupture in the bag, should one occur.

Another object of the invention is to provide a bag which will itself weigh less than laundry bags which are now in use and yet will be stronger than laundry bags which are now usual in the trade.

Another object of the invention is to provide a fabric which will be so woven that it will have some elasticity and thus will take up, due to its inherent construction, some of the shocks which may occur while the bag is in use in washing.

Another object of the invention is to treat the bag chemically so as to enable it to better withstand the wear to which the bag is subjected.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a plan view of a bag constructed in accordance with this invention;

Fig. 2 is a greatly enlarged view illustrating somewhat diagrammatically the fabric of the bag;

Figs. 3 to 6 are diagrammatic views to bring

out the weave structure of the bag which I provide, Fig. 3 showing the chain stitch or warp knit arrangement of certain of the warp threads of the fabric, showing the stitch as it occurs in one of the longitudinal rows;

Fig. 4 is a view showing the relationship of three of such rows of chain stitches;

Fig. 5 is a view illustrating two chain stitch rows of thread with lay-in warp yarns also in their relative position in the fabric to these two rows of chain stitch yarns;

Fig. 6 is a diagrammatic view illustrating diagrammatically the relation of the yarns which go to form the chain stitch shown in Fig. 4, more particularly indicating their travel from one row to another and the assembly with the yarns to form another row;

Fig. 7 is a diagrammatic view illustrating the arrangement of lay-in warp yarns and their travel in each of the rows in which they are located while extending across from one longitudinal row to another longitudinal row.

This invention deals particularly with a better weave structure for a laundry bag by providing an open mesh work fabric in which the yarns form rows with cross yarns tying the rows together so that there will be no shifting of the yarn at the point of tying the rows together and there can be no run or sliding through of the yarns should a break occur at any point. A further feature is the treatment of the bag chemically so as to increase the endurance of the fabric and threads which go to make up the fabric that they may better withstand the harsh usages to which they are subjected.

With reference to the drawing, 10 designates generally a laundry bag made up of open mesh fabric designated generally 11 (see Fig. 2) and consisting of two sheets of fabric sewed together as at 12 along their bottom and side edges and bound along the open edges as at 13 to provide a bag for containing soiled clothes. The fabric structure consists of knit rows 14 of yarns with crossing yarns 15 which extend from one row to another, tying these rows 14 in definite spaced relationship and providing openings 16 of some predetermined regular shape. The particular shape of these openings, however, is not important and may be varied somewhat by different weave structures. In order to provide for a suitable locking of the yarns at the crossings and the desired open mesh fabric, I have provided what may be termed a "warp knit fabric" made upon such machines as the "Rochelle" or "Kayloom" or some similar type of machine which is capable

of providing a warp knit structure and a lay-in warp associated therewith.

In Fig. 3, I have illustrated a chain stitch designated generally 17 and which comprises one of the essential parts of one of the rows 14. This stitch consists of looping together groups of yarns, such as a group of three, designated 18, 19, and 20, in a usual warp knit relation. The yarns 18, 19 and 20 are formed into a plurality of interlocking loops as at 21, 22 and 23 and then the group of yarns which go to form these loops are separated and join with other yarns to form other loops. For instance, yarn 18 extends to the right, while yarns 19 and 20 extend to the left, as shown in Fig. 3. The general pattern of this relationship can be seen further in Fig. 4 where the yarn 18 of one row 14 crosses with the yarns 19 and 20 of the next row 14 along somewhat diagonal lines. The relationship may be further schematically illustrated as in Fig. 6, in which the group of three yarns 17 are in the chain stitch formation as shown at the arrow 17 in Fig. 3, but the individual yarns which form a chain stitch 17 will separate and extend in opposite directions to rows 14a and 14b where they will assemble with yarns coming from such rows as 14x and 14y to form other chain stitches 17' and 17'' and then will return to row 14 and again form a chain stitch 17.

During this interlocking knit relationship of the yarns in this chain stitch formation, I also provide lay-in warps, three in number, which are designated 25 as a group, and will be so referred to, as this group remains together throughout its travel. As the chain stitch portion 17 is formed, the portion of the group 25 which is designated 26 will lay in back and forth between the loops of the chain formation, as shown in Fig. 5, and also as designated for its corresponding portion in Fig. 7. After the group of yarns 25 has been intertwined with the chain stitch in the row, they will extend as at 27, as shown in Fig. 7, over two rows (see also Fig. 5). The lay-in warps, however, in the row designated 28, which are also performing this same operation as at 29, will form a doubling portion 30 of the six yarns, as seen in Fig. 7 and also seen in Fig. 5 at the location 31, so that in reality there are six lay-in warp yarns extending between each chain stitch row 14 and also additional crossing yarns 18 from one row and 19, 20 from a second row, which, in the fabric so woven, tend to twist about and bind the six lay-in warps at 31 into a single compact unit.

The crossing relationship and binding in of the tying together yarns by reason of this knitting formation and lay-in warps so locks the parts together that they cannot shift to change the shape of the opening or to permit unraveling if any breaking occurs. The structure is extremely strong and even though one yarn may become worn, there are still a sufficient number of additional yarns to hold the parts together so that rupture of any appreciable size to destroy the usefulness of the bag cannot occur.

In order that this bag may better withstand the usages to which it is put, it is subjected to a treatment of some product which will become insoluble and will bind together the fibers of the yarns which are used, besides binding these yarns together. Synthetic resins such as are available from many suppliers are used for this

purpose, and among the synthetic resins which may be used the following are satisfactory:

"Rhonite" W333
W444

"Rhonite" 212
313
414

"Rhoplex" W66
WC9
ER

"Aerotex" #301..... Marketed by Calco Chemical Co.

In the use of "Rhonite" W333 and W444 and "Rhoplex" W66, WC9 and ER, no curing or subsequent washing is required. However, in the use of "Rhonite" 212, 313 and 414, curing and washing are necessary. In the use of "Aerotex" #301, curing is advisable, but washing is unnecessary.

The goods are impregnated with one of these resin materials and then dried at a temperature of from 200 to 220° F., where curing is necessary; but where no curing is necessary, the material is dried at a temperature of 280°-320° F. for two to seven minutes, depending upon the temperature used. Where no curing is necessary, the drying temperatures are from 206°-280° F. Catalysts are sometimes used to assist the completion of the operation.

As a result of this treatment, damage due to friction of yarns one moving on the other is materially reduced where the individual threads touch each other. By reason of the weave structure, considerable elasticity of the fabric is provided and yet the fabric does not distort to any detrimental extent the general shape of the bag being maintained.

I claim:

1. A laundry bag having a warp knit construction with rows of warp knit threads joined at intervals with lay-in threads so bound at the points of connection with said rows as to prevent a shifting of the open-work mesh of the fabric.

2. An open mesh laundry bag having a warp knit fabric with knitted yarns extending in rows spaced from each other a distance substantially greater than the width of said rows and with a yarn of one row extending across into another row at spaced intervals and interknitted with the yarns therein, and with the portion of the yarns extending between each row defining sides of the openings in the fabric, said fabric being so constructed and arranged as to prevent shifting of the yarns at the points of connection of said rows.

3. An open mesh laundry bag having a warp knit fabric with a plurality of knit yarns and lay-in yarns extending in spaced rows with both lay-in and knit yarn of one row extending across into another row at spaced intervals, said fabric being so constructed and arranged as to prevent shifting of the yarns at the points of connection of said rows.

4. An open mesh laundry bag having a warp knit fabric comprising a plurality of spaced parallel rows of yarns in chain stitch relation, each row consisting of a plurality of yarns together in chain stitch warp knit formation for a portion of the length of a row with the yarns of said row separating and extending in gener-

ally opposite directions to assemble with yarns and form another row and then continue with such other yarns in the same direction in said other row in chain stitch warp knit relation, whereby the rows are locked together at intervals in a relation to prevent relative shifting of the rows and the ties therebetween.

5. An open mesh laundry bag having a warp knit fabric comprising a plurality of spaced parallel rows of yarns in chain stitch relation, each row consisting of a plurality of yarns together in chain stitch warp knit formation for a portion of the length of a row with the yarns of said row separating and extending in generally opposite directions to assemble with yarns of another row and then continue with such other yarns in the same direction in said other row in chain stitch warp knit relation, and lay-in warps also in said rows and extending from one row to another, whereby the rows are locked together at intervals in a relation to prevent relative shifting of the rows and the ties therebetween.

6. An open mesh laundry bag having a warp knit fabric comprising a plurality of spaced parallel rows of yarns in chain stitch relation, each row consisting of a plurality of yarns together in chain stitch warp knit formation for a portion of the length of a row with the yarns of said row separating and extending in generally opposite directions to assemble with yarns of the next row and then continue with such other yarns in the same direction in said other row in chain stitch warp knit relation, and lay-in warps also in said rows and extending from one row to

another, whereby the rows are locked together at intervals in a relation to prevent shifting of the rows and the ties therebetween.

7. An open mesh laundry bag having a warp knit fabric comprising a plurality of spaced parallel rows of yarns in chain stitch relation, each row consisting of a plurality of yarns together in chain stitch warp knit formation for a portion of the length of a row with the yarns of said row separating and extending in generally opposite directions to assemble with yarns of the next row and then continue with such other yarns in the same direction in said other row in chain stitch warp knit relation, and lay-in warps also in said rows and extending from one row to the second row, whereby the rows are locked together at intervals in a relation to prevent shifting of the rows and the ties therebetween.

8. A laundry bag having a warp knit construction with rows of warp knit threads joined at intervals with warp threads so bound at the points of connection as to prevent a shifting of the open-work mesh of the fabric, said threads being treated with a resin to increase their resistance to wear.

9. A laundry bag having a warp knit construction with rows of warp knit threads joined at intervals with warp threads so bound at the points of connection as to prevent a shifting of the open-work mesh of the fabric, said threads being impregnated with an insoluble, fused resin to increase their resistance to wear.

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