

Dec. 4, 1934.

E. C. GWALTNEY

1,983,451

LAUNDRY BAG

Filed Nov. 9, 1931

2 Sheets-Sheet 1

Fig. 1.

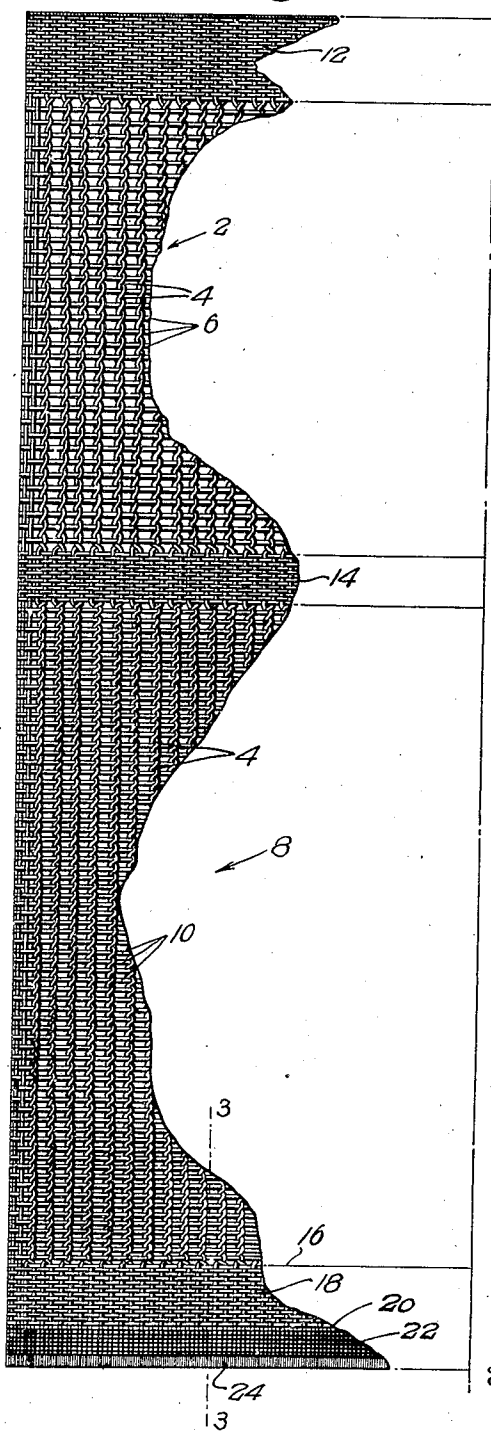


Fig. 2.

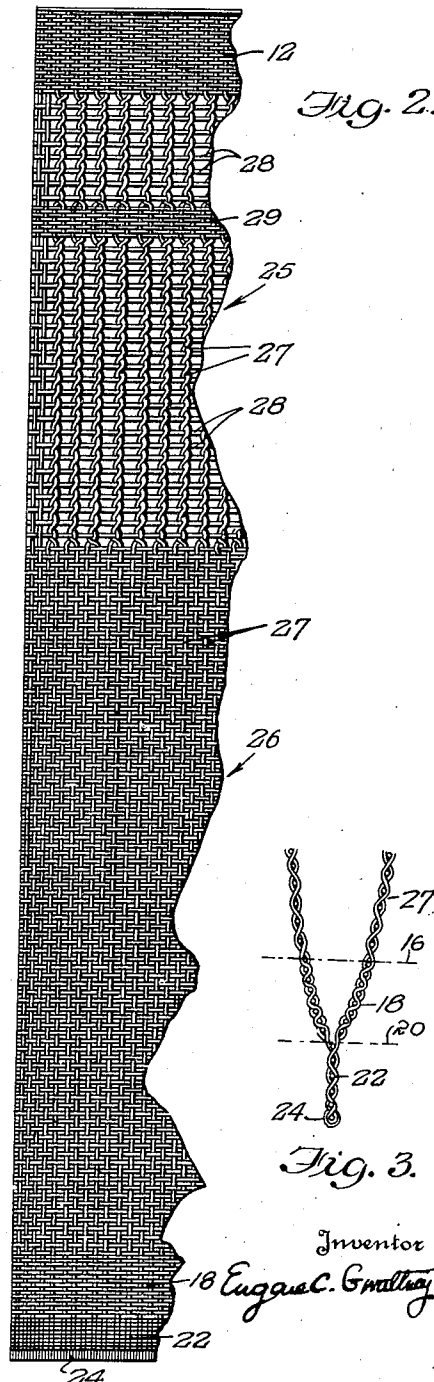
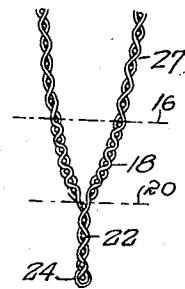


Fig. 3.



Inventor

18 Eugene C. Gentry

Fisher Pedersen,

Attorneys.

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2 Sheets-Sheet 2

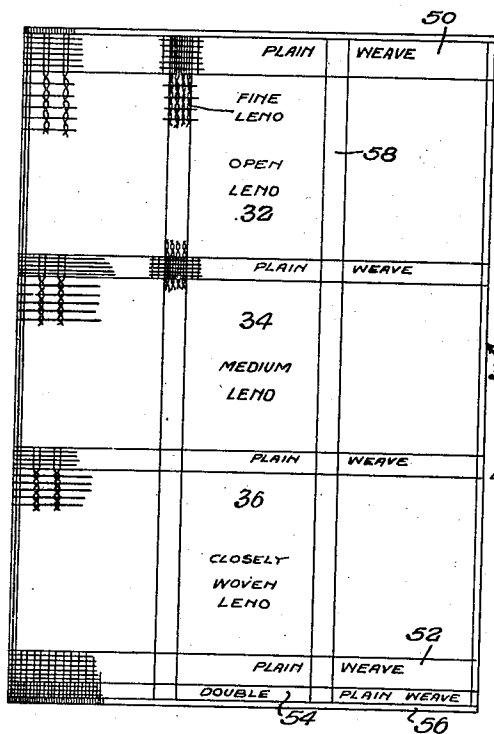


Fig. 4.

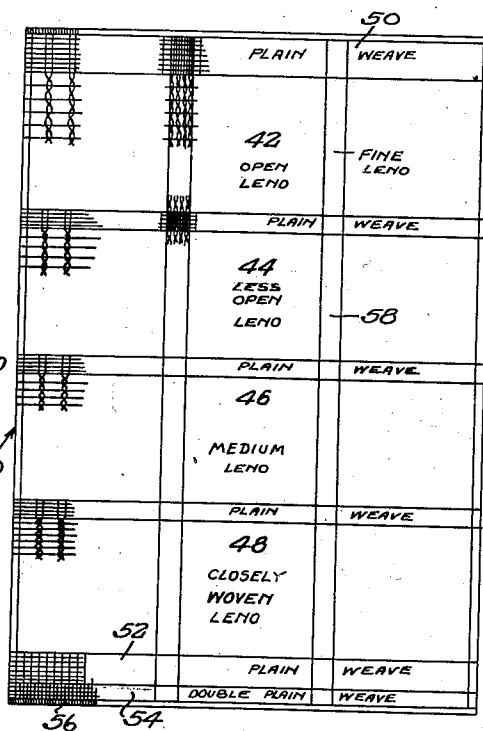


Fig. 5.

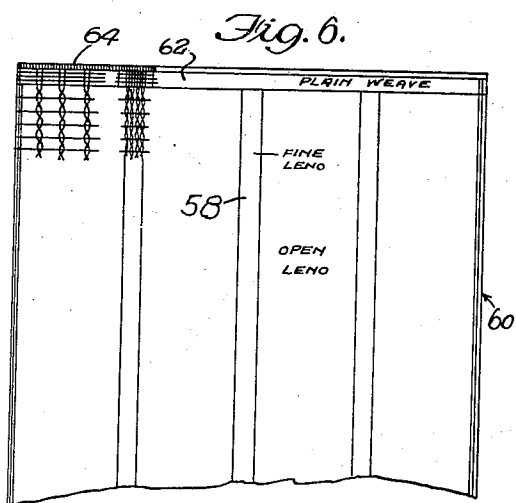


Fig. 6.

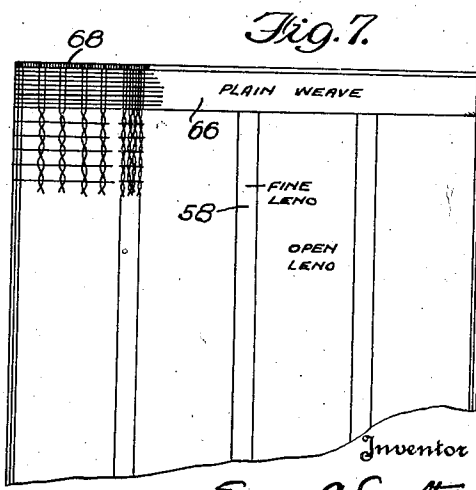


Fig. 7.

Inventor
Eugene C. Gwaltney

By

Fisher Pedersen, Attorneys.

UNITED STATES PATENT OFFICE

1,983,451

LAUNDRY BAG

Eugene C. Gwaltney, Laurinburg, N. C.

Application November 9, 1931, Serial No. 573,957

5 Claims. (Cl. 139—389)

This invention is a laundry bag or laundry net or dye bag or net which is made to last longer than the usual bag or net by a distribution and selection of particular weaves, the additional life and resistance to wear not substantially increasing the weight or cost of the bag. While capable of use as a dye bag or net the invention, for convenience, will be described as a laundry net.

The usual laundry net or laundry bag tends to wear out in the lower half of the bag. This is due to the fact that one end of the bag is usually held in a constricted and closed position by pinning, and this constriction forces the clothes in the bag toward the bottom, and makes a bulge in the bottom half of the bag. Since these laundry nets are subjected to rolling and tumbling in the washing machines, most of the wear occurs in the lower half of the bag. Holes of substantial size will be worn through the lower half of the bag, while the upper half is nearly as good as new, but the presence of these holes necessitates the discarding of the entire bag.

While the life of a bag can be increased by making the bag of heavier yarn, or by providing the whole bag with a closer mesh, the use of a heavier yarn is objectionable, first because it increases the weight and expense of the bag, and presents just this much more weight of yarn which must be washed and handled and dried in each laundry operation; so also the use of a finer mesh, which utilizes more threads, increases the weight and cost of the net.

The applicant, in the present invention, increases the life of a laundry net very substantially and yet does not increase either its weight or its cost, by making the upper part of the bag, where the wear is relatively light, of a coarser mesh than usual in a bag of corresponding weight and utilizes the yarn thus saved in making the lower part of the bag, where the wear is relatively heavy, of a mesh closer than usual in a bag of corresponding weight, thereby increasing the durability of the lower part of the bag.

The invention is particularly applicable to a seamless tubular laundry net of leno weave where the warp is substantially uniform for the entire length of the bag. The coarseness of the mesh in the upper part of the bag, and the closer mesh in the lower part of the bag are effected through control of the weft or filling. The resulting bag, as has been noted, is no heavier and contains no more yarn than a bag of corresponding size and weight, yet has a substantially greater life than a bag of corresponding size and weight which is provided with a uniform mesh throughout.

The ratio between the coarse weave in the upper part of the bag and the closer weave in the lower part of the bag may be approximately as one to one, that is to say about 50% may be coarse weave and 50% closer weave. However, this may be varied within a reasonable range and in the preferred embodiment of the invention about 40% of the bag may be made with the coarse mesh, while the lower 60% may be made with the closer mesh.

The invention, in its broader aspects, is as above described, namely, providing the upper part of the bag with coarse mesh, preferably substantially uniform, and in providing the lower part of the bag with a closer mesh, preferably substantially uniform, thereby reducing the bulk and weight of the bag and increasing its life. The bag or net may, if desired, be provided with certain accessory features, but it should be understood that while certain of these accessory features are deemed important, the invention, in its broader aspects, is not limited to the use of such features, and they may, if desired, be omitted and the claims are to be so construed. These accessory features are a pinning band at or near the mouth of the bag, the upper edge of which may be provided with an overcast seam, lateral reinforcing bands in the body of the bag, a friction band, a tabby bottom and an overcast seam, at or near the bottom of the bag. These features will now be described.

In order further to prolong the life of the bag, it is provided near its upper or open end, with a pinning band of substantial width made of plain weave. The leno weave is best for the body of the bag, because of its large mesh, but a leno weave is not as durable against pinning as a plain weave, and so the provision of a pinning band of plain weave substantially increases the life of the bag.

At the bottom of the bag there is provided a friction band of plain weave below which is a tightly woven, single ply plain weave forming a tabby bottom. The tabby bottom completes the bag. An overcast seam is provided along the lower edge of the tabby bottom to prevent raveling.

The friction band is an important feature; the overcast seam tends to fold back on the bag and rub against the bag, especially if the bag is turned inside out, as is oftentimes done. The overcast seam, which is a heavy, hard seam, rubs against the mesh of the bag and if it rubs against a leno weave would tend to wear through such weave. In order to prevent this wear, the friction band is provided at or near the bottom of the bag, against which the overcast seam may bear, when and if

bent back against the bag. This friction band is formed by the band of plain weave just above the tabby bottom.

In a modified form of the invention the upper half, or substantially the upper half, of the bag may be made of a leno weave. Substantially the lower half of the bag is made of a plain weave, which is more resistant to wear than the leno weave, the result of which is that the life of the bag is substantially increased, yarn being taken away from the upper part of the bag where it is not needed, and applied to the lower part of the bag, where it is needed, to take care of the greater wear in the lower part of the bag. The change from the leno weave to the more resistant plain weave substantially increases the life of the bag. The ratio between the leno weave in the upper part of the bag and the plain weave in the lower part of the bag may be varied, the preferred range being 50% of each, or 40% of leno to 60% of plain weave. This modification of the bag may be provided with pinning bands and friction bands as described in connection with the first embodiment of the invention.

In the patent to Howe 1,572,605 dated Feb. 9, 1926, isolated reenforcing bands are used, but in this patent certain portions of the mesh in the lower part of the bag between the bands is as open as the mesh in the upper part, and such portions would be weak and would quickly be ruptured. Again, this patent does not teach the art to lessen the amount of yarn used in the upper part of the bag, and use the yarn thereby saved by forming a closer mesh in the lower part of the bag.

In the patent to Elliott 928,642 dated July 20, 1909, isolated squares of close and open mesh are disclosed, but there is no teaching in this patent as to any difference in the mesh in the upper and lower parts of the bag.

The invention may also be carried out by providing a number of laterally extending zones in which the mesh gets progressively closer, considered from the open end of the net or bag to the closed end.

The invention will be further described in connection with the accompanying drawings showing in more detail the present preferred embodiments thereof.

In these drawings,

Fig. 1 is a view, partly broken away, of a net illustrating the invention;

Fig. 2 is a similar view showing a modified form;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Figs. 4, 5, 6 and 7 are side views of four other modifications.

Referring now to these drawings, in which similar reference characters indicate similar parts, the laundry bag illustrated in Fig. 1 is of the leno weave type, made tubular and seamless, the same warp threads extending longitudinally of the bag, that is from top to bottom, or lengthwise thereof. The upper part 2 of the bag is made of a leno weave somewhat coarser than the leno weave in a similar type of bag of corresponding weight. The warp threads of this weave are indicated at 4, while the weft or filling threads are indicated at 6. The coarseness of the weave is controlled by the amount of filling used. The lower part 8 of the bag is made of leno weave, the weft or filling 10 being closer than in the upper part of the bag to form a mesh which is closer than in the upper part of the bag 2, and which is closer than the leno weave in a similar type of bag of

corresponding size and weight. By virtue of the closer weave in the lower part 8 of the bag, this part is made much stronger, and has substantially increased resistance to wear, than the upper part 2 of the bag. Since, as has been explained, the greater part of the wear occurs in the lower part of the bag, the life of the bag is very substantially increased. However, the total amount of yarn used, and the total weight of the bag, is not increased, because less yarn is built into the upper part 2 of the bag, where there is not much need for strength, and the yarn thereby saved is built into the lower part 8 of the bag, substantially increasing its strength where strength is needed.

The ratio between the coarse leno weave 2 and the closer leno weave 8 may be about 50% of each, although, in the present preferred embodiment of the invention there is about 40% of the coarse leno weave, as at 2, and about 60% of the closer leno weave as shown at 8. If desired, this could be reversed, and about 60% coarse leno, with 40% closer leno, could be used.

While the lower part of the bag is thereby substantially strengthened by the closer mesh 8, the bag is still entirely efficient for its purpose, because the leno weave in the lower part of the bag is still sufficiently open to permit the ready flow of the hot, soapy water or other liquid into and out of the bag.

In order further to strengthen the bag, the bag is provided around its upper or open end with a pinning band 12 made of plain weave, the plain weave being preferable because it is more resistant to pulling out than is leno weave. This pinning band may be at the mouth or open end of the bag, or may be set in a little way from the open end.

The body of the bag may be provided with one or more reenforcing bands 14 of plain weave.

Near the bottom of the bag, at about the line 16, the leno weave 8 changes over into a close mesh plain weave forming a friction band 18 extending around the bag near the bottom. This band 18, of close mesh plain weave, is substantially stronger than leno weave and forms a friction band the function of which will be described below.

At about the point indicated at the line 20, the two plies 18 of the friction band are merged or woven together to form a tabby bottom 22, which tabby bottom is thick, hard and stiff like very heavy duck, this tabby bottom serving to close the bottom of the bag. The tabby bottom is made by "beating up" the weft threads very tightly, so as to make the hard stiff band. The lower edge of the tabby bottom 22 is provided with an overcast seam 24 for preventing raveling. The tabby bottom serves an important function in that it closes the bottom end of the bag and eliminates the necessity of closing the bottom of the bag by turning up the bottom and stitching it, as is done for example in the patent to Sitton 1,682,198 of August 28, 1928.

Coming now to the function of the friction band 18, the overcast seam and the tabby bottom tend in use to bend around and rub against the body of the bag, especially if the bag should be turned inside out, as is often done in actual use. The overcast seam and tabby bottom would rub against the body of the bag and if it rubbed against the leno weave, it would tend to wear through, since the leno weave is not very strong. But with the placement of the friction band 18 as has been described, the overcast seam and the

tabby bottom, if they bend around the body of the bag, will rub against the strong friction band 18, which is strong enough to take care of this friction.

5 Referring now to the modification shown in Fig. 2, there is illustrated a seamless, tubular laundry bag in which the upper part 25 is of leno weave, while the lower part 26 is of a plain weave, the plain weave being of closer mesh than the leno weave. In this bag, as in the other form, the same warp 27 extends for the entire length of the bag. A filling 28 is used in the upper part 25 of the bag in any desired amount, preferably to give a rather coarse mesh since there is relatively little wear in the upper part of the bag. The plain weave, relatively close mesh 26 is very resistant to wear and so the resulting bag is much stronger than if made of a leno weave like the upper part 25 of the bag and yet the bag is lighter than a bag of corresponding size made of plain weave throughout, because of the lesser amount of yarn used in the upper part 25 of the bag. The plain and leno weave may be about equal in area, although about 40% leno and 60% plain weave is preferred. However, these proportions could be reversed, and 60% leno and 40% plain used.

One or more lateral reenforcing bands 29 of plain weave may be used as desired, while the upper part of the bag may be provided with a pinning band 12 of plain weave, as in Fig. 1, while the bottom part of the bag may be provided with a friction band 18, tabby bottom 22 and overcast seam 24 as in Fig. 1.

35 In the modification shown in Fig. 4, there is diagrammatically illustrated a net or bag 30, provided with a number of laterally extending zones 32, 34 and 36, the mesh in zone 32 being relatively open, that in zone 34 being closer, while the mesh in zone 36 is still closer. As in the other forms, this bag is preferably leno weave, seamless and tubular, with a uniform warp, the variation in the mesh in the several zones being effected by increasing the amount of weft or filling.

45 The modified bag or net 40 shown in Fig. 5 has four zones 42, 44, 46 and 48, wherein the mesh is most open in zone 42 at the mouth of the bag and progressively increases toward the bottom zone 48, where the mesh is closest. This form of the bag, and also the form in Fig. 4, may be provided with a pinning band 50, friction band 52, tabby bottom 54 and overcast seam 56, as described in connection with Figs. 1 and 2.

55 The nets shown in Figs. 1, 4 and 5, may, if desired, be provided with one or more longitudinally extending bands 58 of leno weave, the mesh of which is finer than the adjacent parts of the bag.

In the modification shown in Fig. 6, the body portion 60 of the net is leno weave of any of the types heretofore described; the mouth or open end of the net is provided with a relatively narrow band 62 of plain weave, the upper edge of which is provided with an overcast seam 64. This band 62 is soft and pliable and particularly useful in preventing raveling. In Fig. 7, the plain weave band 66 is made wider than in Fig. 6, and so can serve as a pinning band as well. This band is also provided with an overcast seam or overcast top 68. These modifications may be incorporated in the forms of the invention shown in the other figures.

75 The bags illustrated, by reason of the selection and placement of the yarns, as has been described, have a durability and life substantially

greater than the ordinary commercial types of laundry bags, yet without any appreciable increase either in weight or cost or amount of yarn used. While the preferred embodiments of the invention have been described in some detail, it should be understood that the invention is not to be limited to the exact details and proportions shown, but may be carried out in other ways as falling within the scope of the following claims:—

I claim as my invention:—

1. A tubular, seamless leno weave laundry bag wherein approximately the lower half of the bag is of closer weave than the upper half of the bag, the leno weave, near the bottom of the bag, changing over into a two-ply plain weave, the two-ply plain weave at its lower edge, being woven together into a single ply for forming a tabby bottom, the outer edge of the tabby bottom being provided with an overcast seam, the two-ply plain weave forming a friction band for protecting the bag against friction from the overcast seam.

2. A tubular, leno weave laundry bag wherein the warp is uniform throughout the bag, while the filling in approximately the upper half of the bag is made more open than usual in a bag of corresponding weight, while the filling in approximately the lower half of the bag is made closer than in a bag of corresponding weight, whereby the lower half of the bag is substantially strengthened and is stronger throughout than the upper half of the bag yet the amount of yarn used, and the weight of the bag, are not increased, all as compared with a bag of corresponding size and weight, the leno weave, near the bottom of the bag, changing over into a two-ply plain weave, the two-ply plain weave at its lower edge, being woven together into a single ply for forming a tabby bottom, the outer edge of the tabby bottom being provided with an overcast seam, the two-ply plain weave forming a friction band for protecting the bag against friction from the overcast seam.

3. A tubular, seamless leno weave laundry bag having a substantially uniform warp for the length of the bag, the leno weave, near the bottom of the bag, changing over into a two-ply plain weave, the two-ply plain weave at its lower edge, being woven together into a single ply for forming a tabby bottom, the outer edge of the tabby bottom being provided with an overcast seam, the two-ply plain weave forming a friction band for protecting the bag against friction from the overcast seam.

4. A tubular, seamless leno weave laundry bag having a substantially uniform warp for the length of the bag, the leno weave terminating near the mouth of the bag and changing at such point to a plain weave of substantial width, for forming a pinning band near the mouth of the bag, the leno weave, near the bottom of the bag, changing over into a two-ply plain weave, the two-ply plain weave at its lower edge, being woven together into a single ply for forming a tabby bottom, the outer edge of the tabby bottom being provided with an overcast seam, the two-ply plain weave forming a friction band for protecting the bag against friction from the overcast seam.

5. A tubular, leno weave laundry bag wherein the warp is uniform throughout the bag, while the filling in approximately the upper half of the bag is made more open than usual in a bag of corresponding weight, while the filling in approximately the lower half of the bag is made

closer than in a bag of corresponding weight, whereby the lower half of the bag is substantially strengthened, yet the amount of yarn used, and the weight of the bag, are not increased, all as compared with a bag of corresponding size the leno weave terminating near the mouth of the bag and changing at this point to a plain weave of substantial width, for providing a pinning band near the mouth of the bag, the leno weave, near the bottom of the bag, changing over into a two-ply plain weave, the two-ply plain weave at its lower edge, being woven together into a single ply for forming a tabby bottom, the outer edge of the tabby bottom being provided with an overcast seam, the two-ply plain weave forming a friction band for protecting the bag against friction from the overcast seam.

EUGENE C. GWALTNEY.

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