May 16, 1944. W. D. STOHLMAN ET AL 2,349,206

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FIG. 1.

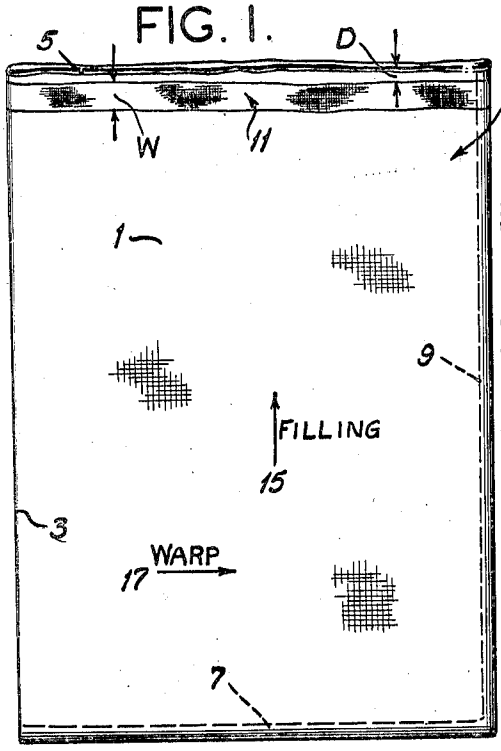


FIG. 2.

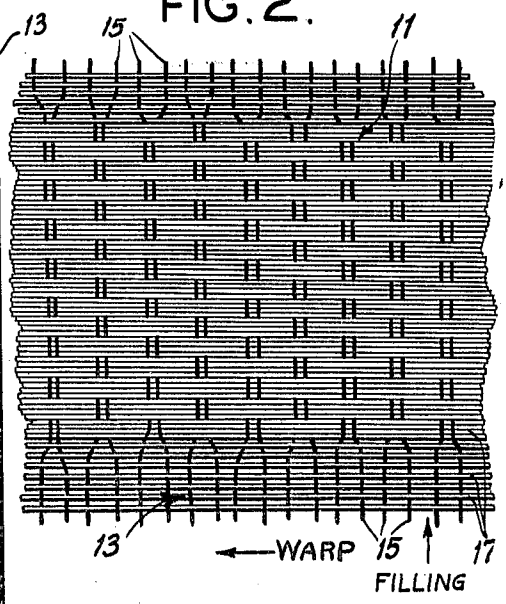


FIG. 5.

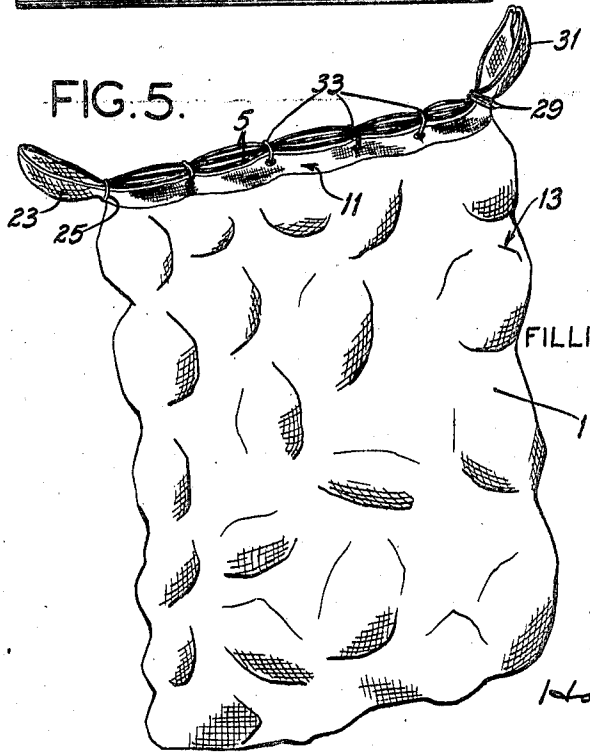
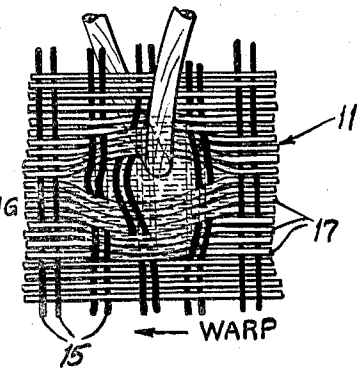


FIG. 6.



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FIG. 3.

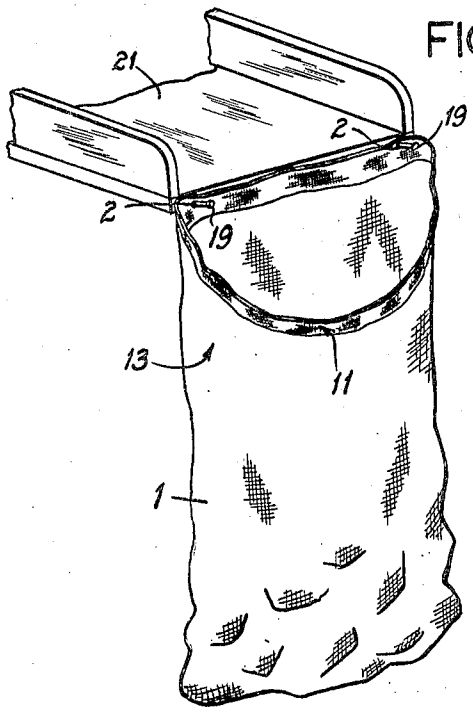
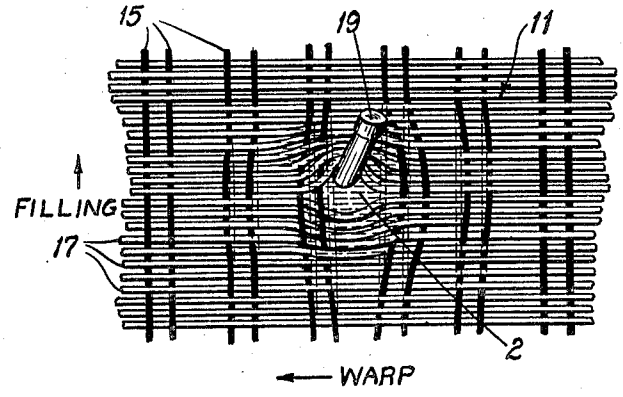


FIG. 4.



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UNITED STATES PATENT OFFICE

2,349,206

BAG

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Application September 28, 1942, Serial No. 459,928

7 Claims. (Cl. 28—78)

This invention relates to woven fabric bags intended to be supported upon hooks or the like when receiving their commodities and which are subsequently stitched by needle and twine in order to effect closure.

The invention is an improvement upon that disclosed in the United States Patent 2,259,274, dated October 14, 1941, issued to William D. Stohlman, one of the inventors herein.

Among the several objects of the invention may be noted the provision of a fabric bag which during filling operations may be hooked or similarly supported at points adjacent to its mouth, and which may be sewn shut by means of large needles and tight and heavy twine, without permanently damaging the bag; the provision of a bag of the class described which, after one use, may be subsequently used again because of its good condition after its initial use or uses; and the provision of a bag which is stronger at the mouth, and wherein said objects are obtained without substantial complication. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is illustrated one of various possible embodiments of the invention,

Fig. 1 is a side view of a flat empty bag embodying the invention;

Fig. 2 is an enlarged detail segment of the bag fabric, taken near the bag mouth;

Fig. 3 is a perspective view showing one use of the invention;

Fig. 4 is a fragmentary enlarged detail of a stripe portion of Fig. 2, showing in solid lines what temporarily occurs when the bag is used as shown in Fig. 3;

Fig. 5 is a view showing a closed and loaded bag; and,

Fig. 6 is a view similar to Fig. 4 showing in solid lines a detail of what temporarily occurs around the twine shown in Fig. 5.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Said Patent 2,259,274 describes a bag comprising fabric of relatively tight plain weave constituting the main and larger body area of the bag, and a smaller area constituted by a basket-weave which is continuous with respect to certain threads of fabric in said main body area. The basket-weave is made up of multiples of a relatively large number of threads in one direction and multiples of a relatively smaller number of threads in the other direction, the basket-weave admitting the insertion of a sampling probe and withdrawal of the same without breaking the threads and with subsequent closing of the resulting opening without the addition of more material at the opening.

We have now found that a basket-weave of the above nature, if properly placed, not only permits the insertion of large instruments and subsequent closing of the resulting opening; but is also stronger in resisting various abusive forces occurring near the bag mouth. It also is effective to close openings around the twine or the like used in closing the bag, the abusive forces in fact enhancing the closing effect.

Referring now more particularly to Fig. 1, there is shown at numeral 1 a bag made from a rectangle of cloth of ordinary plain weave folded at 3. The rectangle may be presumed to have been cut off from a strip withdrawn from a roll, the selvages of which were at the ends of the roll and which appear at 5 and 7 in Fig. 1. The edges of this rectangle are brought together and two edges sewn as indicated at 7 and 9. The seamed bag is then turned inside out to provide the finished bag of Fig. 1 wherein the seamed edges are inside. The warp threads 17 pass around the bag and the filling threads 15 are parallel to its length. Thus the bottom and one side are stitched shut, the other side is a fold, and the top at the selvage 5 is open.

The special feature herein is that the cloth from which the bag is made has woven into it, near the selvage 5, a basket-weave stripe 11. The main body 13 of the bag is made of ordinary plain weave. By plain weave is meant that the threads are not woven over and under one another by multiples but merely singly.

The term full basket-weave means two or more warp threads (preferably four) are woven as one warp; and two or more filling or weft threads (preferably two) are woven as one filling; throughout the area occupied by the basket-weave. This is diagrammatically shown in Fig. 2, the filling threads being again shown at numerals 15 and the warp threads at numerals 17.

In the particular basket-weave stripe shown, the filling threads 15 of the plain weave of the main body 13 are continued across the stripe 11 by pairs; and the warp threads 17 in the stripe

11 are like those of the main body except that they are interwoven quadruply with pairs of filling threads. Thus the weaving is continuous throughout the body 13 and stripe 11, but it differs in character in the two.

It is important to the present invention that the stripe 11 be near the open selvage end 5 of the bag; and it is preferable that the warp threads pass around the bag, or at least that the number of threads which are grouped together for weaving along the length of the stripe 11 (around the bag) be greater than the number of filling threads for weaving crosswise of the stripe 11. It is preferable that the threads woven parallel to the stripe be the warp threads. It is also important that the threads which constitute the filling of the basket-weave of the stripe 11 be continuous (as described) with the filling threads of the plain weave in the main body portion 13 of the bag. It is also preferable that the warp threads in the stripe be individually of the same size as those in the tight weave or main body of the bag.

Exemplary dimensions for the stripe 11 are $1\frac{3}{16}$ inch width at W, and about ½ inch at D, spacing from the end of the bag. This spacing D presents a better selvage than the basket-weave of the stripe.

Referring to Fig. 3, there is illustrated the first function of the invention, which is to permit the bag 1 as a whole, for example, to be hooked near its open end onto supporting pins 19 on the end of a loading chute 21. In this position the bag may be held to receive vegetables, fruit or the like from the chute, while the bag is held open. Since the stripe 11 is near the bag mouth, it naturally receives the hooks. During hooking on, openings 2 occur, and as the loading proceeds, the weight increases distortion. This increases the opening size (see Fig. 4). However, the aggregations of basket-weave warp threads cause a piling up of the threads without breakage, as indicated, and the filling threads are readily pushed aside. If an ordinary bag with tight weave in the region of the stripe 11 were applied as shown in Fig. 3, some tearing would be expected adjacent to the mouth of the bag. This tearing is not desirable because it reduces the resale value of the bag for subsequent use and weakens the bag at its mouth.

After the bag has been filled and removed from the hooks 19, the resulting openings caused by these hooks or pins automatically work shut by the ordinary movements of the bag which occur thereafter. If the threads were not intact this could not occur.

A second function of the invention comes into play after the bag is filled and removed from the hooks 19. At this time it is the custom to use a bladed needle and relatively heavy twine to sew the bag mouth shut. This is illustrated in Fig. 5. With the present basket-weave stripe 11 in the region of the sewing, openings may occur as shown in Fig. 6, but no tearing even under abuse. Furthermore, any openings that occur work shut around the thread after the sewing operation has been finished. In addition, after the thread is removed upon re-opening the bag, these openings entirely reclose so that a second-hand bag, so far as its mouth end is concerned, presents a good appearance and may be used a second, and even more times, provided the remainder of the bag is also in good condition.

Regarding sewing (Fig. 5), it is common practice to draw out an ear from the mouth end of the bag as indicated at numeral 23. A loop of twine is then tied around the base of the ear as shown at 25. The strand is then stitched across the bag as at 33, and one or more loops 29 are thrown around the base of a portion which is drawn out as second ear 31. The result, according to the present invention, is not only the closing of the bag mouth by sewing through the basket-weave stripe, but also the provision of the ears 23 and 31 containing the ends of said stripe. Since many bags are made as small as possible for a given content, it occurs in the case of fruit and vegetable bags, particularly potato bags, that the opposite sides of the mouth are drawn tightly between the stitching which stretches the adjacent material.

The basket-weave prevents the formation of permanent tears. As known, bags of this nature are dragged around by the ears, and the basket-weave at the bag mouth 5 and in the ears 23 and 31 prevents the formation of high tearing stresses at the mouth. In fact, any pulling about by the ears tends to work shut any openings formed about the stitching, rather than to widen any openings.

It should be understood that the invention is also applicable to bags which contain flour and grain and similar material, wherein quite often a small roll is rolled into the edge by the stitcher as he proceeds, in order to obtain a tighter closure than shown in Fig. 5. In such cases, the bags are not loaded up so closely to the mouth. The selvage D of tight weave is of added importance in such a case.

The entire bag is not made of the material of multiple, basket-woven yarn contrasted to the single-yarn weaving is costlier and results in a material which is not desired throughout the bag sides in general.

From the above it will be seen that the main body of the bag is made of plain woven fabric which if pierced would receive a permanently open tear, but that the stripe 11 is made of material of a basket-weave, which is resilient, and which constitutes an area at the proper place through which a spike, or a needle and twine may be thrust to effect holding and which stripe appears in the pulling ears 23 and 31.

In Figs. 4 and 6, the dotted lines indicate how the openings of the basket-weave stripe work shut. It will be understood that the holes work themselves shut even in the absence of hand manipulation. Also, after a bag is reopened and the stitching removed any remaining openings may be purposefully worked shut and thus a good second-hand bag is obtained.

It will be understood that the bag may be filled by supporting it on other articles than the pins 19. For example, there are spreading frames having spikes in them. The location of the present stripe 11 is such as to be met by said spikes as ordinarily used. Also, other fastenings may be used for the twine, as for example metal clips, staples and the like.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. A bag comprising a main body portion of

relatively large area of plain woven fabric composed of filling and warp threads, the filling threads running longitudinally of the bag and the warp threads running around the bag, and a basket-weave stripe woven continuously with the plain weave and running completely around the bag adjacent to the mouth, the position of said stripe being such as normally to receive piercing spikes and the like from which the bag is supported for filling, and to receive the fastening means by which the bag is ordinarily closed.

2. A bag comprising a main body portion of relatively large area of pain woven fabric composed of filling and warp threads, the filling threads running longitudinally of and the warp threads running around the bag, and a basket-weave stripe woven continuously with the plain weave, said filling threads traversing the stripe and multiple warp threads traversing its length, said stripe running completely around the bag adjacent to but spaced from the mouth, the position of said stripe being such as normally to receive piercing spikes and the like upon which the bag is supported for filling and to receive the needle and thread by which the bag is ordinarily closed.

3. A bag comprising a body portion of relatively large area of plain woven fabric, the filling threads of the fabric running longitudinally of and the warp threads running around the bag, plain woven narrow selvage at the edge of the bag mouth, and a basket-weave stripe running completely around the bag adjacent to the mouth but spaced from the bag mouth by said plain woven selvage, the position of said stripe being such as normally to receive spikes and the like upon which the bag is supported for filling and to receive the needle and thread by which the bag is ordinarily closed.

4. A bag comprising fabric of plain weave constituting its main body area, a basket-weave stripe adjacent to the mouth edges of the bag, stitching passing through said stripe to hold said mouth substantially shut, said stitching passing through the area of the stripe, and means forming at least one ear from the corner of a bag at the mouth and containing part of a stripe.

5. A bag comprising fabric of plain weave constituting the main body area of the closed bag, a basket-weave stripe surrounding the bag adjacent to its mouth edges, means passing through said stripe to hold said mouth substantially shut, said means passing through the area of the stripe, ears at the corners of the closed bag at the ends of said mouth, said ears containing portions of said stripe.

6. A bag comprising fabric of plain weave constituting the main body area of the bag when closed, said area having filling threads parallel to the sides of the bag and warp threads parallel to the bag ends, a basket-weave stripe adjacent to and surrounding the mouth of the bag, stitching passing through said stripe to hold said mouth substantially shut, said stitching passing through the area of the stripe and forming ears at the corners of the bag at the ends of said mouth, said ears containing portions of said stripe, said filling threads being woven through and across said stripe and certain of the warp threads adjacent said mouth being woven by groups throughout the stripe, the number of threads in the stripe in the warp groups being greater than the number of filling threads.

7. A bag comprising fabric of plain weave constituting the main body area of the closed bag, a basket-weave stripe adjacent to the mouth edges and surrounding the bag, stitching passing through said stripe to hold said mouth substantially shut, said stitching passing through the area of the stripe and forming ears at the corners of the bag at the ends of said mouth, said ears containing portions of said stripe, the filling threads of the plain weave being longitudinal of the bag and the warp threads peripheral, said filling threads being woven through and across said stripe and certain of the warp threads adjacent said mouth being woven by groups through the filling threads throughout said stripe, the number of threads in the warp groups being greater than the filling threads, and a narrow plain woven portion extending from the basket-woven stripe and forming a plain woven selvage which includes said filling threads.

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