Jan. 11, 1944. P. A. FRIXIONE 2,339,068

PAPER SACK

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Fig. 3

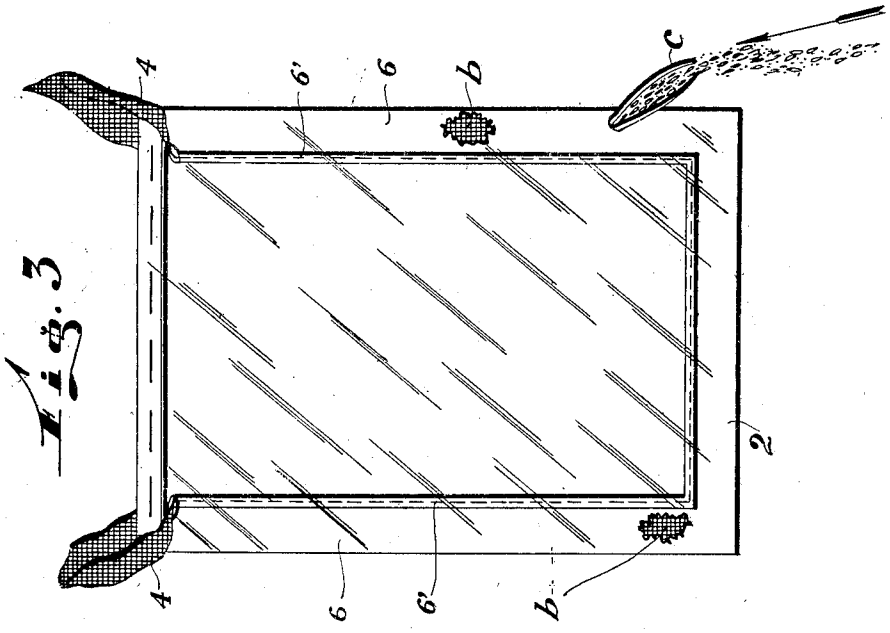



Fig. 1

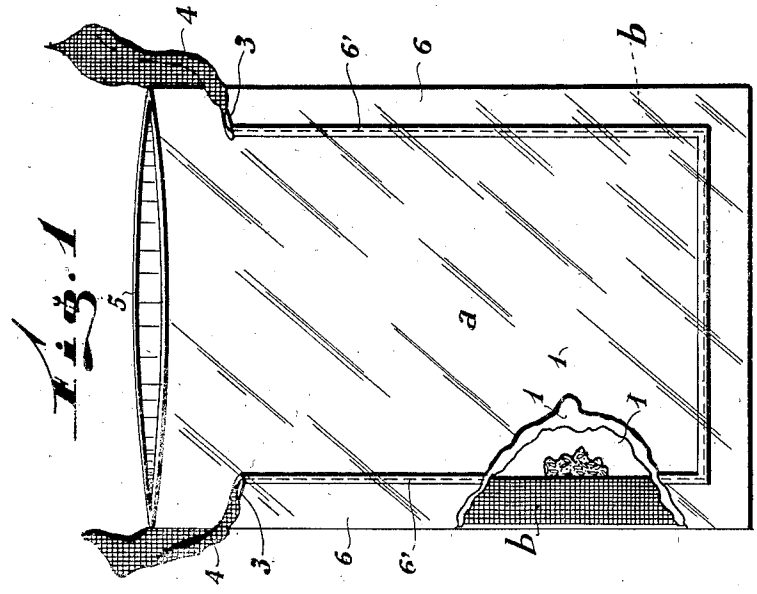
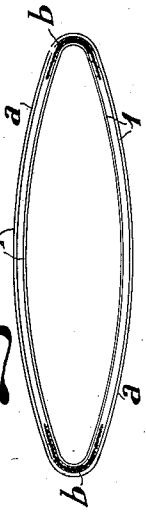



Fig. 2




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2,339,068

## PAPER SACK

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In Argentina November 4, 1942

5 Claims. (Cl. 229—55)

This invention relates to improvements in paper sacks, and particularly to sacks for use in place of the ordinary burlap or bagging sacks for containing different products, particularly grain.

As is well known, burlap or bagging is used as special material for this kind of containers, which in normal times is practically unreplaceable, inasmuch as it is strong and suitable for transporting grain, and also enables the use of samplers or probes which are generally dug into the sacks for the purpose of determining the contents and quality of the product being shipped or sold. However, the shortage of sackcloth has created a serious problem, particularly in the agricultural field.

Attempts have been made to replace the burlap or bagging with paper in the manufacture of this type of sacks, by using several superposed paper sheets in order to form resistant walls. Such attempts have met with success as regards the provision of an effective container, but such sacks fail when, once filled with grain, they are perforated with a sampler or probe, as due to the nature of the material—paper—it will tear, with the resulting loss of contents, and in some cases the initial cut will extend and destroy the body of the container.

This means that paper sacks, such as they are being made at present, have no practical application in the sacking of grain.

The above drawbacks are overcome in a very simple manner by the present invention, which is based on the application, to the paper sacks, of means enabling the use of perforating samplers or probes, in exactly the same manner as if the sack was made of bagging.

For this purpose, paper sacks made of two or more superposed sheets so as to render them sufficiently strong, are combined with one or more pieces of bagging or other similar fabric which cover part of the sack walls and extent sufficiently to constitute a "sampling" zone. Thus, while covering a relatively small area, said zone extends into vital portions of the sack, so that verifications by means of a sampler or probe may be readily and effectively carried out.

These partial sampling zones of bagging do not unreasonably increase the cost of the product, as due to the manner in which they are combined with the paper walls of the sack, the fabric constitutes a reinforcement which, due to the structure of the warp, allows the introduction of sampling devices of any nature, provided they are dowel-shaped sharp tapered samplers or probes, in order to enable the withdrawal of few grains without cutting the threads, which are merely displaced to resume later their original and normal position, thus avoiding the loss of material.

For this purpose, the bagging or burlap constituting the sampling zone is applied between or against the sheets forming the sack walls, to which it is sewn, glued or otherwise joined in any suitable manner.

One of the main objects of the invention is to provide an economical and solid sack capable of being perforated by a sampling device without being affected.

A further object of the invention is to so combine and take advantage of the applied bagging, that apart from constituting a sampling zone, said bagging will also cooperate as a reinforcement element, and particularly as holding means.

A further object of the invention is to provide a sack having sampling zones, with suitable indications which will indicate from the outside the areas corresponding to said sampling zones.

Other objects and advantages of the present invention will become apparent from the course of the following description, when read in conjunction with the accompanying drawing, which illustrates the invention by way of example and in a preferred embodiment, and wherein:

Fig. 1 is a front view partially in section, of the paper sack having sampling zones constituted by bands or areas provided with burlap or bagging.

Fig. 2 is a sectional view of the same sack, which in this instance is provided with the pieces of bagging interposed between the sheets forming the sack walls; and

Fig. 3 is a graphical representation of a sampling device being introduced into the sack in a zone comprising burlap or bagging, two sampling points being shown, where the paper has been torn but the penetration point is kept closed due to the fact that the warp of the fabric returns to its normal position after the sampling device is withdrawn.

The same reference characters indicate like or corresponding parts or elements throughout the different figures.

As may be seen from the drawing, *a* indicates the sack walls which, as stated above, are formed by several sheets of paper indicated by the reference numeral 1.

These sheets of paper 1 may be sewn, glued, clipped or otherwise held together so as to close into a cylinder, and also so as to form a bottom 2 which is also formed by sewing, glueing, clipping or the like, as is commonly done in the case of

paper sacks constituted by several superposed sheets of paper.

Inasmuch as the sack is intended to contain grain and same should be revised or verified by means of a sampling device or probe which is pierced into the sack, in order to render this possible the sack walls are reinforced with bands or pieces of bagging *b*. In the present instance, the bagging bands or pieces *b* are inserted between the paper sheets **1**, so as to be invisible from the outside. However, it is obvious that said bagging bands or pieces could equally well be applied against the inner face of the walls *a*, and in some cases even against the outer face thereof, provided that said bands or pieces only cover a small area of the wall. However, said bagging should cover zones capable of enabling the verification of the quality or nature of the contents at different points, by the use of sharp sampling devices, as is generally done in the case of sacks made entirely of sackcloth.

In the embodiment illustrated, the bagging piece *b* covers the bottom **2** and the respective folding sides, with or without puckers. As mentioned above, these bagging pieces *b* are inserted between the paper sheets **1**, and from the bottom **2** they extend along the sides to finally protrude from the open end of the sack through openings **3** formed in the paper sheets **1**. Thus, the ends **4** of said bagging pieces projecting through said openings **3** serve as holders once the sack is closed.

As clearly shown in the drawing, the openings **3** are made at a certain distance of the sack mouth **5**, thus leaving a portion free of bagging between said openings **3** and said mouth **5** for the purpose of facilitating the closure of the sack by folding the upper end as clearly shown in Figure 3.

Apart from allowing a good closure of the sack, this arrangement also facilitates the handling of the sack by the ends **4**, in loading or other operations, as happens with the ears in all-bagging sacks.

The bagging *b* may be simply inserted between the paper sheets **1**, or glued, sewn, clipped or otherwise attached thereto, provided it remains as an additional sheet cooperating with the paper sheets **1**.

As stated hereinbefore, the purpose of the bagging bands or pieces *b* is to form sampling zones. Thus, certain portions of the sack walls *a* present reinforcements which enable the introduction of sampling devices or probes *c*, which are generally sharp point dowel-shaped tapered devices which on being pierced into the sack, allow the withdrawal of grains, as shown in Fig. 3, for the purpose of verifying the contents.

The sampling zones are indicated by the reference numeral **6**, and in order that they may be recognized from the outside, lines or fields **6'** are printed on the outer surface of the walls *a* so as to indicate said sampling zones **6**.

In this manner, the sack subject of the present invention may behave the same as any ordinary sack made entirely of bagging or burlap, since the person in charge of the verification of the contents can use a sampling device without danger of tearing the sack, as while the paper sheets are torn in this operation, the nature of the fabric in the sampling zone will cause the warp to return to its normal condition after the withdrawal of the sampling device.

Even if the sack is pierced several times by the sampling device in the zones **6**, same will still remain intact as a holder, notwithstanding the fact that the paper sheets have been torn by the sampling tool, as shown in Fig. 3.

It is evident that in carrying the invention into practice, several changes in construction and details may occur to those skilled in the art, without departing from the scope of the invention as clearly set forth in the appended claims.

What is claimed is:

1. A grain bag, the side walls of which are made of laminations of paper, the side edges and the bottom edge of the bag being reenforced by bands of burlap, the zone of reinforcement being relatively narrow in relation to the width of the bag, the burlap material of the reenforcing bands allowing the insertion of a sample probe and being sufficiently resilient to close the puncture after the removal of the probe.

2. A grain bag as defined by claim 1 in which the bands of reenforcement are inserted between the laminations of the paper wall.

3. A grain bag as defined by claim 1 in which the bands of reenforcement are inserted between the laminations of the paper wall, the walls of the bag having openings adjacent the open end, and said bands projecting through said openings to serve as lifting means when the bag is filled.

4. A grain bag as defined by claim 1 in which the bands of reenforcement are inserted between the laminations of the paper wall, the walls of the bag having openings adjacent the open end, and said bands projecting through said openings to serve as lifting means when the bag is filled, the portion of the bag above said openings being devoid of reenforcement so as to facilitate closing of the bag by folding the upper end.

5. A grain bag as defined by claim 1 in which the bands of reenforcement are inserted between the laminations of the paper wall, the walls of the bag having openings adjacent the open end, and said bands projecting through said openings to serve as lifting means when the bag is filled, the portion of the bag above said openings being devoid of reenforcement so as to facilitate closing of the bag by folding the upper end, and wherein the sampling zones are shown on the outer face of said bag by means of printed indications.

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