March 5, 1929. W. F. CRAWFORD 1,704,284

HARVESTING SACK

Filed Sept. 28, 1928

Fig. 1.

Fig. 2.

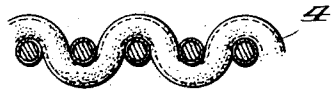


Fig. 3.

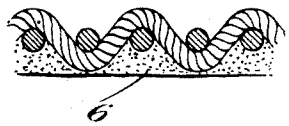
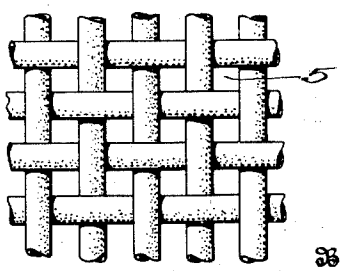


Fig. 4.



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Patented Mar. 5, 1929. 1,704,284

UNITED STATES PATENT OFFICE.

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HARVESTING SACK.

Application filed September 28, 1928. Serial No. 309,055.

This invention relates to harvesting sacks for cotton picking and proposes a fabric receptacle for this specific purpose in which traction over the ground is facilitated, the wear-resisting qualities improved, the sack rendered dirt and moisture proof, and the fabric thereof stiffened to cause the mouth of the sack to remain conveniently open for the reception of cotton even though the sack be made of originally light material.

The object of the invention is the construction of a sack having the above enumerated qualities imparted to it by treatment, (impregnation or coating) of the fabric thereof, with a suitable ingredient or composition of matter.

Other objects and advantages of the invention will appear as the following description of a preferred embodiment thereof proceeds.

In the drawing, in which similar characters of reference designate the same features in all the figures,

Figure 1 is a perspective view of a cotton picker's sack assumed to be constructed according to the principles of the present invention.

Figure 2 is a detail in section, illustrating the physical conditions and alterations brought about by the impregnation of the fabric from which the sack it made.

Figure 3 is a similar view illustrating a portion of the material of a sack made of coated fabric.

Figure 4 is a plan view from beneath showing how the interstices of the weave are reduced or substantially obliterated by the impregnation.

As heretofore made cotton picker's sacks have been constructed of cotton cloth which quickly wears out through friction with the ground, particularly when the sack is laden with cotton. Other objections to the ordinary cotton picker's sack are that it is unduly burdensome to drag, due to the excessive friction engendered by the interengagement of the meshes of the fabric with the surface of the ground and vegetation thereon, and that it lets dirt and moisture through to the collected cotton.

Naturally, the problem of improving the durability of cotton pickers' sacks and the exclusion of dirt and moisture from the cotton has been uppermost in the endeavors of inventors in this field, and various solutions have been proposed such as providing the sack with an additional tractive shoe or apron of wear-resisting material, constructing it with attached tractive plates on the lower side, or providing that it may be reversed so that the top becomes the bottom, thus doubling the duration of wear. These solutions of the problem involve either intricacies of construction or result in rather ponderous devices, so that they have not found ready adoption in the industry.

The present invention solves the problem in a novel and practical manner, since it does not require the slightest departure from the simplicity of construction of cotton gathering sacks as universally used, nor does it necessarily increase the weight thereof, since a lighter fabric may be used, if desired, so that a six-ounce treated fabric is no heavier than an eight-ounce fabric, not treated.

Referring now to the several figures, the numeral 1 represents a cotton picker's sack, the portion 2 of which drags on the ground in the ordinary movement of the sack between the rows of cotton plants. This part, as ordinarily constructed, wears out quite rapidly through friction with the ground, and for the same reason, dragging of the sack especially when laden with cotton is quite laborious. Furthermore, the contact of the nether surface of the sack with the ground kicks up a fine dust that percolates through the interstices of the meshes of the fabric forming the bag and lodges on the collected cotton. The pervious nature of the material also makes it impractical to leave the partially filled sacks out doors over night in the dew or light rain.

In carrying out the present invention, the material of which the sack is made, or the bag itself after being made from untreated material, is treated with a liquid or plastic composition having the quality of being absorbed at least in part by the fabric threads, so that the particles of the composition either adhere to or become lodged, by impregnation, in or between said threads, thus becoming wear-resisting constituents of the threads themselves. Not only does the coating or impregnating composition act in the above manner to increase the wear resistance of the threads and thus to increase the general strength of the fabric, but it smooths the fabric, decreasing the frictional coefficient, and permanently swells the threads to give, among other things, the effect of a closer weave. In other words, the application of

the coating or the impregnation of the fabric decreases the area of the interstices in the fabric to the point of obliteration so that the fabric is made impervious to dust and moisture and is at the same time rendered highly resistant to wear, and substantially stiffer to cause the bag to remain in a normally open position and furnished with a smooth surface by which the sack may be drawn along the ground with a much reduced effort as compared with heretofore known sacks for the same purpose.

The effect of an impregnating solution upon the mesh is clearly indicated in Figures 2 and 4, in which the dotted line reticulation represents the original size of the threads, their enlarged size being indicated in full lines at 4 and being due to the inter-fibrous deposits of the solid wear-resisting particles in the threads. The reduction in the area of the interstices of the mesh is indicated at 5, the showing being much exaggerated, since in practice the interstices are completely closed.

In Figure 3, the reference character 6 represents a coating layer in adherence with the fabric. In both applications of the invention, the effect is to improve the smoothness of the ground-engaging surface, thus further to increase the wear-resisting qualities of the sack and to improve the ease with which it may be drawn about. Another effect of the coating of impregnating composition is slightly to stiffen the walls of the sack so that the mouth thereof maintains itself open for convenience in filling much better than the ordinary sack of flimsy material.

In the treatment of the fabric to impart to the same the desired wear-resisting, dust and moisture excluding properties and to enable the same to be more easily dragged along the ground, and to provide the desired stiffness by which the sack is held in a normally open position for the convenient and free reception of the cotton, various compositions under the general heading of water-proofing solutions may be employed. It has been found that a solution of 200 pounds of paraffin, 10 gallons of boiled linseed oil, 90 pounds of dry yellow ochre, 20 pounds of litharge (lead oxide), 6 pounds of dry burnt sienna, 4 pounds of dry burnt umber, 30 gallons of gasoline and 20 pounds of degras or wool grease is admirably adapted for use in this connection and in addition to the performance of the foregoing functions it renders the sacks immune to mildew. However, many compositions coming under the general head of water-proofing agents have been used with success, the usual expectable water-proofing characteristics of the solutions being subordinated to those other characteristics ordinarily latent, but which, in a cotton picker's sack, produce results far beyond those to be expected from the mere water-proofing of a fabric.

What I claim as new is:

1. A harvesting sack of the type designed to be dragged upon the ground, comprising a woven fabric having the material thereof impregnated with a composition including the following ingredients: paraffin, wool-grease, linseed oil, coloring matter (filler) and gasoline.

2. In a harvesting sack for use in picking cotton, a woven fabric body formed initially with interstices and having means for decreasing friction when in contact with the ground comprising a water and dust proofing solution having a paraffin base infused in the woven fabric body and filling the interstices thereof.

3. In a harvesting sack for use in picking cotton, a woven fabric body formed initially with interstices and having means for decreasing friction when in contact with the ground, said means comprising a water and dust repellent solution incorporated in the woven fabric body and occupying the interstices thereof.

4. In a harvesting sack for use in picking cotton, a woven fabric body formed initially with interstices and having means for decreasing friction when in contact with the ground comprising a plastic solution infused in the woven fabric body and occupying opposite surfaces thereof to protect the fabric body from destructive contact with the ground and to inhibit the passage of dust and moisture through said interstices.

5. In a harvesting sack for use in picking cotton, a woven fabric body formed initially with interstices and having means for decreasing friction when in contact with the ground comprising a water and dust proofing solution incorporated in the woven fabric body and filling the interstices thereof and occupying the outer surface of the body to protect the body from wearing contact with the ground.

In testimony whereof I affix my signature.

WILBUR FRANCIS CRAWFORD.