March 14, 1961 L. B. WOMELSDORF 2,974,442

SHADE CLOTH

Filed Jan. 13, 1959

FIG. 1.

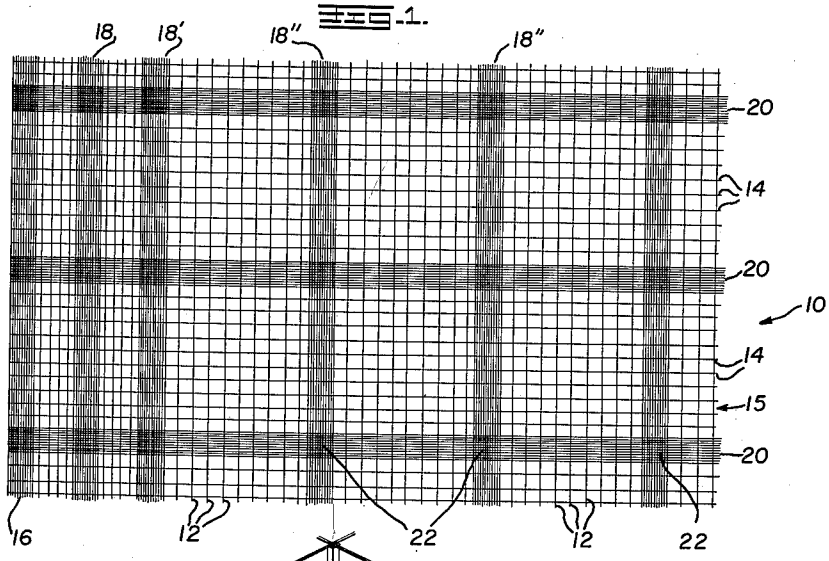


FIG. 2.

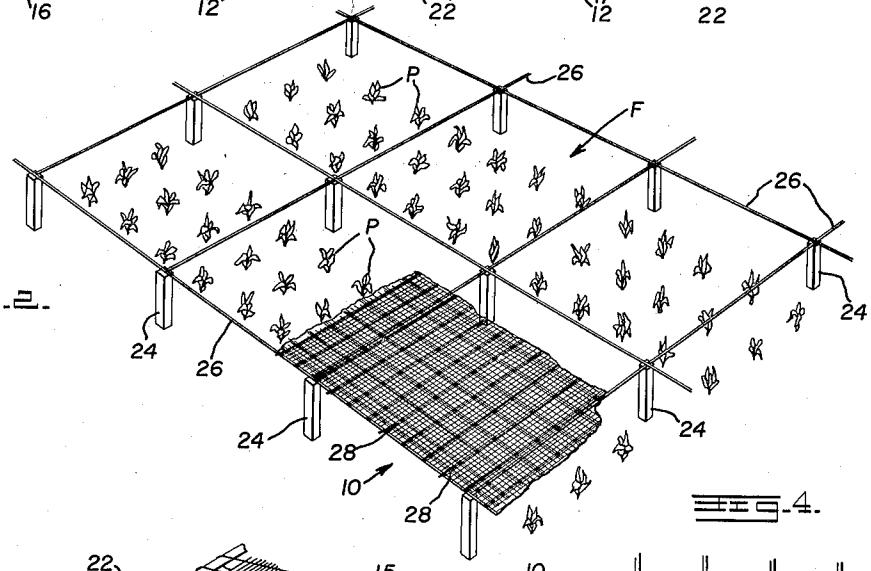
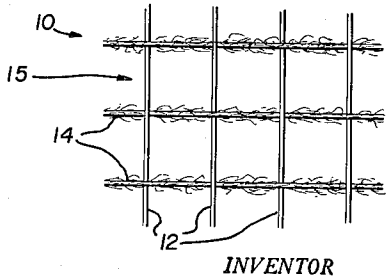


FIG. 4.



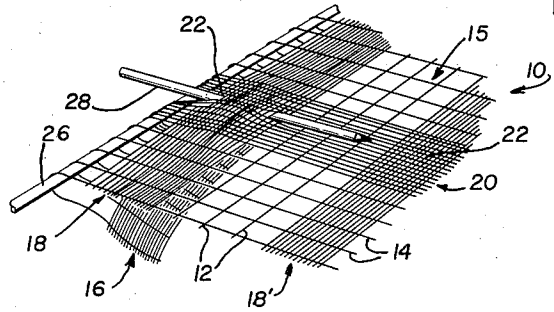


FIG. 3.

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SHADE CLOTH

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3 Claims. (Cl. 47—26)

This invention relates generally to the textile art, and more particularly to a new and improved shade cloth for tobacco plants or the like.

Shade cloths are conventionally constructed of a loose or open ground weave having relatively few yarns per inch. These fabrics are usually made having constructions of 8–16 warp and filling yarns per inch. The interstices between pairs of adjacent intersecting warp and filling yarns are large and this portion of the fabric does not possess much strength. However, reinforcing warp stripes of higher yarn density are disposed periodically in the cloth for holding the pins which fasten the fabric to supporting wires.

The reinforced warp stripes alone, however, are not sufficient to properly hold the cloth in place, since gusts of wind are apt to pull the cloth against the securing pins and permit the position of portions of the stripe to be changed, thus weakening the pin supporting portions with the result that the cloth tears and breaks free of the pins. This would happen even in the selvage in which the warp density is higher; but, since the filling yarn density is substantially the same throughout the fabric, even the selvage weave is fairly loose.

Furthermore, since the warp stripes are located 12–18 inches apart, there is no guide available to assure correct alignment of the cloth with the wires and the fabric is often pinned on a bias. There are obvious reasons why this is a disadvantage but no solution has yet been offered which will eliminate this problem.

With these defects of the prior art in mind, it is the primary object of this invention to provide a shade cloth which is adequately reinforced both in longitudinal and transverse direction to be sufficiently strong to withstand the elements (wind, rain, etc.) and to properly anchor the pins, twine or the like which are used in securing the fabric to the support wires.

Another object of this invention is to provide a plurality of equally spaced longitudinal stripes close to the selvage for use in anchoring the securing means and to serve as a guide when pinning the fabric to prevent its being applied on a bias.

A further object of this invention is to provide a fabric of the type described wherein the filling yarns are bulky and hairy having many outwardly projecting fibers, so that a maximum of shading may be obtained with a minimum of yarns being used.

The foregoing objects and others ancillary thereto are accomplished, according to a preferred embodiment of the invention, by providing the ground of a fabric with a yarn construction of from 8 x 8 to 16 x 16 or any variation between these two limits. Wide selvages are provided along the longitudinal edges of the cloth to provide wide pinning areas. A plurality of longitudinal and transverse stripes, defined by regions of closely spaced yarns, are provided. The first and second longitudinal stripes at each selvage are spaced about 4 inches apart with the first stripe being disposed the same distance from the selvage. The other longitudinal stripes are spaced further apart

to provide periodic reinforcement. The regions of intersection of the transverse stripes with the selvage have a large number of yarns per inch in all directions and serve as anchor zones for the pins.

The novel features that are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawing, wherein like reference characters indicate like parts throughout the several figures and in which:

Fig. 1 is a fragmentary plan view of the shade cloth comprising the present invention, illustrating the arrangement of the reinforcing stripes;

Fig. 2 is a perspective view of tobacco shade supports and wires with the shade cloth shown in Fig. 1 attached thereto;

Fig. 3 is a fragmentary view in perspective showing the manner of pinning the shade cloth to the supporting wires, and

Fig. 4 is an enlarged fragmentary plan view of the field of the shade cloth.

Referring now more particularly to the drawings, numeral **10** generally designates the shade cloth which is the subject of the present invention. As shown in Fig. 1, the cloth is constructed of a plurality of longitudinally extending or warp yarns **12** and transverse or filling yarns **14** which are interwoven to form a fabric. For purposes of clarity, the weave shown is a plain weave although others may be used. However, since it is a well known fact that a plain weave gives the strongest fabric construction, this weave is preferable.

The ground or field **15** of the fabric has a construction ranging between 8–16 warp yarns per inch and 8–16 filling yarns per inch. Any construction which has a substantially greater yarn per inch density is too costly to be commercially feasible. Also, a loose ground construction is desirable and, as a matter of fact, necessary, because rain must pass therethrough fairly easily and some sunlight is also necessary. A higher yarn construction would only serve to keep out too much sunlight. A cloth construction having a substantially smaller yarn density will prove to be too weak.

The edges of the fabric have selvages **16** therealong, which are conventional in the normal weaving of fabrics. A plurality of longitudinal stripes **18**, **18'** and **18''** parallel to the selvages are formed in the fabric by having a higher warp density in these portions. For example, there may be 60 warp yarns per inch in these stripes, although the stripes need not be as wide as an inch. As may be seen in Fig. 1, the first two stripes **18**, **18'** will be spaced closer to the selvages and to each other than the other stripes. In a preferred construction, the first stripe **18** is spaced 4 inches from the selvage and the second stripe **18'** is spaced 8 inches from the selvage with all of the other stripes **18''** being uniformly spaced 12 to 18 inches from each other. The first two stripes not only reinforce the cloth but also serve as guides for alignment with the wires of the supporting structure to prevent the pinning of the cloth thereto on a bias.

A plurality of transverse stripes **20** normal to the selvages **16** and the stripes **18**, **18'** and **18''** are also provided in the cloth by using a higher filling yarn density, such as 60 filling yarns per inch. These stripes **20** are spaced about 10 inches apart. High density areas **22** are thus formed in the fabric at the intersections of the longitudinal and transverse stripes and have a construction of 60 x 60. Areas **22** are the strongest portions of the cloth and for this reason the pins will be secured therethrough. The ground **15** of the fabric is thus defined

within the rectangles formed by the intersection of warp and filling stripes **18**, **18'** and **18''**, and **20**, respectively. This cloth, because of the reinforcing stripes, is strong and durable enough to withstand the great strains it encounters from rain, wind, and the like which quickly deteriorate the conventional type of cloth.

As shown in Fig. 2, a cloth supporting structure is formed of posts **24** spaced apart equal distances in the longitudinal and transverse directions, for example 16 feet over a field F of tobacco plants P. A plurality of wires **26** are secured to the upper ends of posts **24**. The cloth is then placed over the wires. Since it is highly impractical to weave cloth in 16 ft. widths, a plurality of cloths from the loom are joined along their selvage edges. Of course, the spacing of posts **24** may be varied to conform to the width of the joined fabrics.

Assuming that the cloth is to be pinned to the wires, the selvage edge, which is wider than any of the stripes, is folded over the wires, and a pin **28** is inserted through the area **22** of the selvage which encircles the wire. Since these areas **22** occur in the selvage about every 10 inches, the selvage is pinned to the wire every 10 inches. Thus, it will be seen that the edge of the fabric is securely held to the wire because of the large number of securing pins in the cloth.

Another method of pinning the cloth is to fold the edge of the cloth over the wire until a selvage area **16** coincides with a high density area **22**, as shown in Fig. 3. Then the pin is inserted with the point being passed through the selvage **16** and the reinforced areas **22**. While the pinning is taking place, the second warp stripe **18'** may be used as a guide to assure the cloth being properly aligned with the wires and not on a bias. Also, if it is desired that certain portions of the fabric be under greater tension than other portions, the selvage may be aligned with areas **22** in the second stripe. This may also be done in the event that the wires **26** are not parallel to each other.

The filling yarns have many projecting fibers which give them a larger effective cross section and thus provide more shade.

Although a certain specific embodiment of the invention has been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

I claim:

1. A shade cloth comprising an interwoven fabric having lateral and longitudinal reinforced portions, pin receiving areas defined by the intersections of said reinforced portions, the longitudinal reinforced portions closest to the selvage edge being spaced therefrom a smaller distance than the spacing between other longitudinal reinforced portions to provide a longitudinal pinning guide to prevent off-bias pinning of the fabric to a support.

2. A shade cloth for use in a tent to shade tobacco or the like wherein longitudinal and transverse wires are fixed to the upper portions of posts embedded in the ground, said cloth comprising interwoven filling and warp yarns having a loose ground construction, the longitudinal edges of said cloth having wide selvages formed therein, a plurality of warp and filling reinforced stripes in said cloth having more yarns in the direction normal to the stripes than the ground area, said stripes being narrower than said selvage, the longitudinal stripe adjacent the selvage being closely and equally spaced from the next stripe and the selvage, the others of said longitudinal stripes being spaced further apart, the intersections of said stripes defining fastening areas where the cloth may be fastened to the wires.

3. The cloth of claim 2 wherein the yarns are very fuzzy from projecting fibers, the ends of which are misaligned from the longitudinal axis of the yarn so that a portion of the interstices formed between a pair of adjacent intersecting warp and filling yarns are partially filled to provide additional shading.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 23,603	Rohs	Dec. 23, 1952
905,674	Elliot	Dec. 1, 1908
2,156,986	Heuer	May 2, 1939

FOREIGN PATENTS

288,409	Great Britain	Apr. 12, 1928