

(No Model.)

J. R. PAUL & J. KIRKWOOD.  
SHADE FOR GREENHOUSES.

No. 597,562.

Patented Jan. 18, 1898.

FIG. 1.

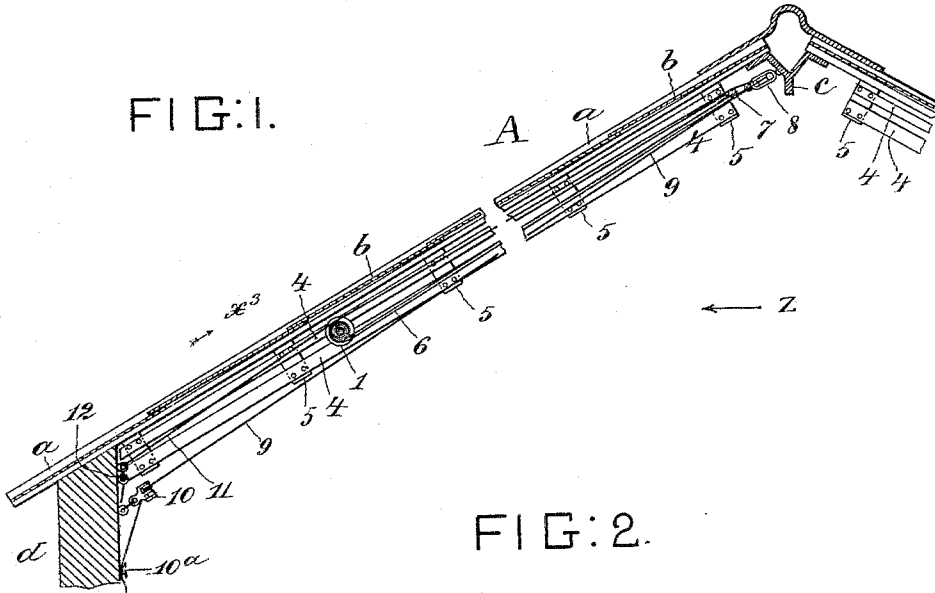
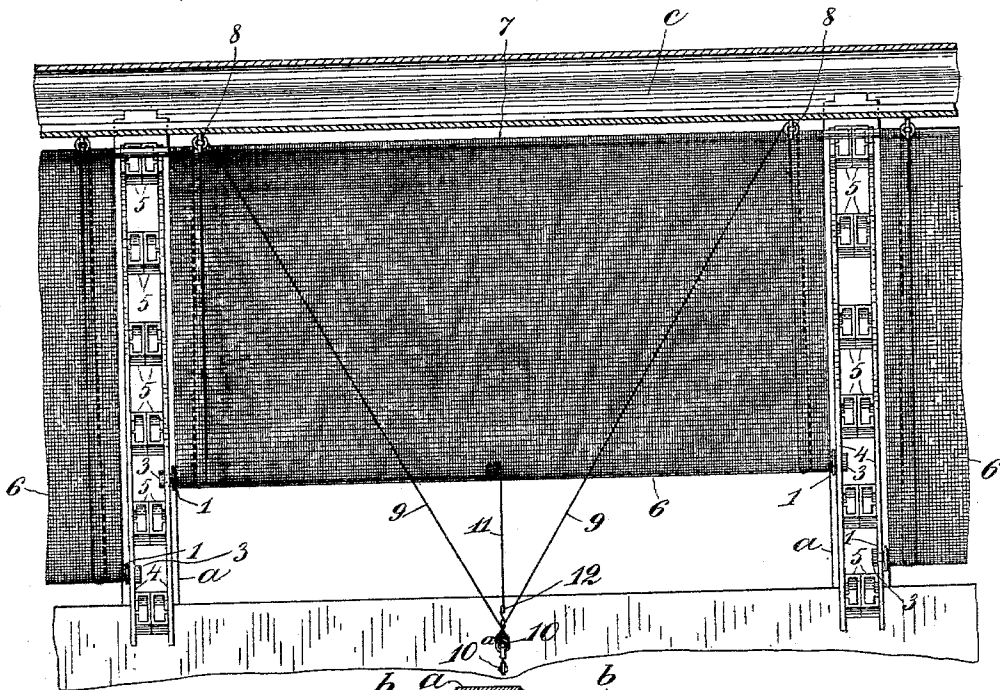


FIG. 2.



WITNESSES:

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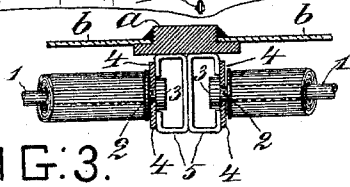


FIG. 3.

INVENTORS:

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# UNITED STATES PATENT OFFICE.

JAMES ROSS PAUL AND JOHN KIRKWOOD, OF LENOX, MASSACHUSETTS.

## SHADE FOR GREENHOUSES.

SPECIFICATION forming part of Letters Patent No. 597,562, dated January 18, 1898.

Application filed July 13, 1897. Serial No. 644,371. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES ROSS PAUL and JOHN KIRKWOOD, citizens of the United States, residing at Lenox, Berkshire county, Massachusetts, have invented certain new and useful Improvements in Shades for Greenhouses, of which the following is a specification.

Our invention relates to shades or screens for the ordinary greenhouse having a sloping roof of glass laid on rafters or in suitable sash; and the object is to provide such a greenhouse-roof with an adjustable shade which shall be easily managed and be protected against inclement weather.

Ordinarily two methods have been employed in order to keep out the full glare and heat of the sun from a greenhouse, the more common way being to paint the sloping glass of the roof, so as to make it translucent, and the other to apply Venetian blinds to the outside of the glass. Both of these modes have their inconveniences. The first is objectionable from lack of ability to remove and replace it at will and from its unsightliness when partly removed or rubbed off in spots, and the second is objectionable on the ground of its cost and from its being exposed to the weather, which soon destroys it.

In carrying out our invention we employ a shade of suitable woven fabric, the material used for window-shades answering very well. This shade, which may be as wide as one section of the roof, will be fastened at its upper end to a bar or fixed part at the apex or ridge of the greenhouse, on the inside, and be fastened at its lower end to a roller, the respective ends of which have collared bearings in double keeper-tracks which extend the sloping length of the rafters under and preferably parallel with the latter. Two cords fixed at the ridge of the greenhouse extend down under the shade near its respective sides, thence around the roller, thence back over the shade to pulleys at the ridge, about said pulleys, and thence back again below the shade to a pulley at the wall of the greenhouse, and thence to a securing-cleat. By drawing on these rolling-up cords the roller is rolled up along its tracks and the shade rolled thereon. If the roller is heavy and the incline considerable, it will roll down of itself

and unroll the shade when the rolling-up cords are relaxed; but in order to insure the proper unrolling of the shade a slender cord is secured to the shade-roller at its middle, so as to roll up with the shade, and this cord serves to draw down the roller.

The accompanying drawings illustrate an embodiment of the invention, Figure 1 being a vertical transverse section of the roof of a greenhouse provided with our improved shade, and Fig. 2 a view as seen from arrow  $z$  in Fig. 1. Fig. 3 is a sectional view in the plane indicated by line  $x-x$  in Fig. 1, but on a larger scale.

The roof  $A$  of the greenhouse is here represented as constructed in the usual way of metal rafters  $a$ , which support the glass  $b$ . The rafters are supported at their upper ends on a ridge  $c$  and at their lower ends on the side wall  $d$ .

The shades will be of convenient width to handle easily and be arranged quite close together, edge to edge, so as to shade the roof throughout its entire length. Each shade is arranged to be operated independently of the others, so that any part of the roof may be screened at will.

1 is the shade-roller, which is mounted with collared bearings at its ends in double keeper-tracks—that is to say, at each end, Fig. 3, the roller has a journal 2 and on the end of this journal a button or stop-collar 3. The journal rolls on the lower of two track-rails 4, the upper one serving as a keeper-rail. The rails are secured to brackets 5, fixed to the under side of one of the rafters  $a$ , and they will be by preference parallel with the rafters.

To the shade-roller is secured at one of its ends a shade 6, the other or upper end of said shade being secured to a rod or bar 7, mounted on the rafters near the ridge  $c$  or at the upper end of the glass. To the ridge or some other fixed part of the greenhouse are attached two pulleys 8 8, and to each of these is fixed a cord 9, which extends down under the shade, about the roller, and thence back over or above the shade to the pulley 8, thence about the sheave of the pulley, and thence down again under or below the shade to a pulley 10, attached to the wall of the greenhouse at a point about the middle of the shade, both cords 9 passing over the sheave or sheaves of this

pulley 10 and thence to a cleat 10<sup>a</sup> on the wall. By drawing on the cords 9 simultaneously the shade is rolled up on the roller, which rolls up along the track-rails 4, and it will be obvious that the shade may be rolled up wholly or partially, as desired.

11 is the cord for drawing the shade down. This cord is attached at one end to the shade-roller at about the middle of the length of the latter, and its free end may play through a guide 12 of any kind on the wall of the greenhouse.

The collaring of the shade-roller in its bearings, as shown, prevents it from playing or shifting endwise, and the stop-collars at its ends tend to keep it straight as it rolls or at right angles to the line of motion.

Having thus described our invention, we claim—

1. The combination with the sloping roof of a greenhouse, comprising rafters and glass laid thereon, of the pair of double track-rails under the roof, or interiorly thereto, the shade-roller, having collared bearings at its ends mounted in said pairs of double tracks, the shade, fixed at its lower end to said roller and at its upper end to a fixed part near the ridge of the greenhouse, the two rolling-up cords

fixed at their upper ends, extending down under the shade and roller, about the latter, up to and about pulley-sheaves near the ridge and thence down and about the sheave of a pulley below, and the said sheaves, substantially as set forth.

2. In a shade for greenhouses, the combination with the track-rails situated underneath the sloping, glass roof of the greenhouse, and the shade-roller, mounted in said tracks and collared against endwise movement, of the shade secured to said roller at its lower end and fixed to some part of the greenhouse at its upper end, the rolling-up cords, mounted and adapted to operate as described, the sheaves on which said cords are mounted, and the drawing-down cord, attached to the shade-roller and adapted to roll up thereon with the shade, substantially as set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JAMES ROSS PAUL.  
JOHN KIRKWOOD.

Witnesses:

JAS. A. CAMPBELL,  
HARRY E. KENDALL.