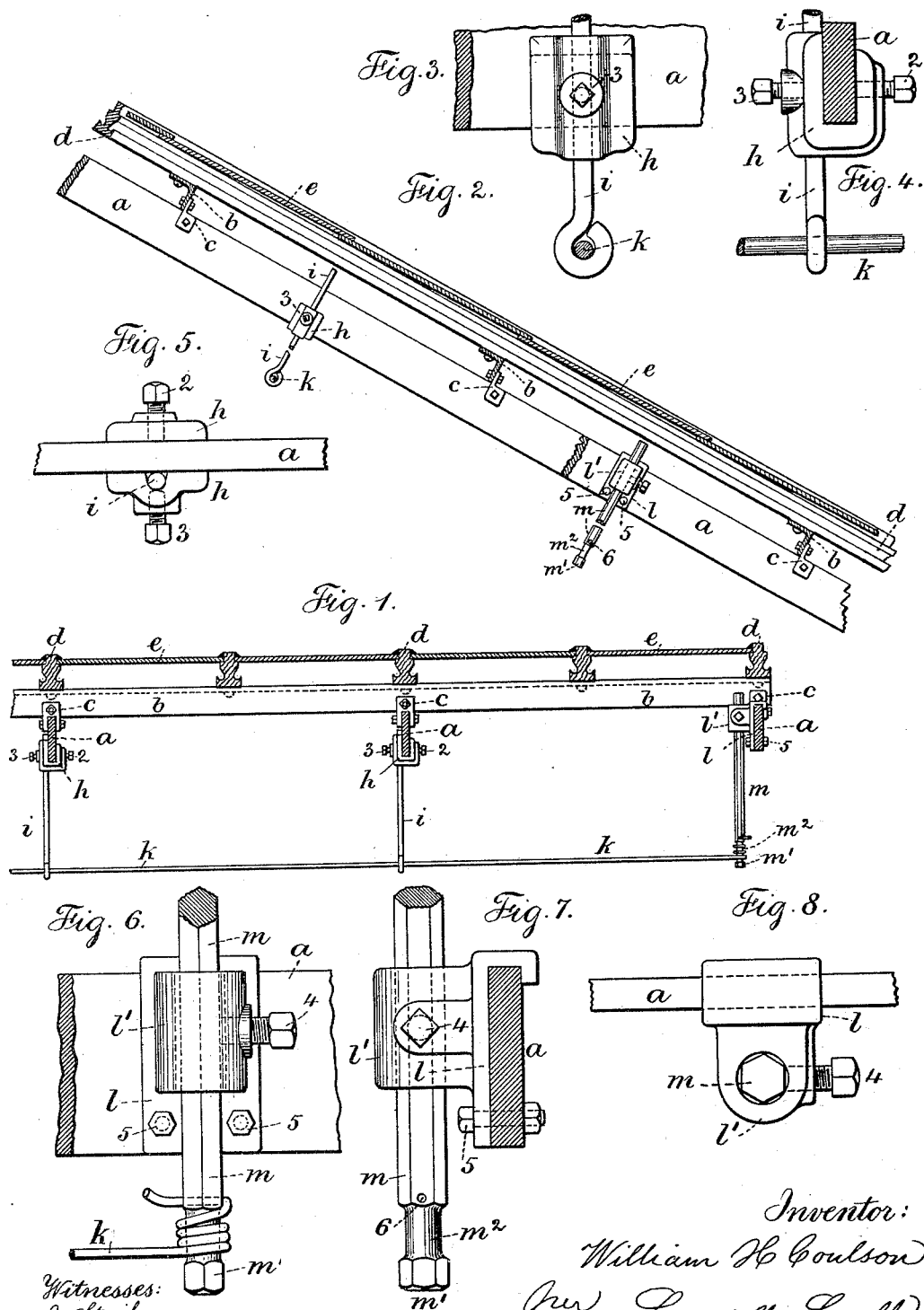


(No Model.)

W. H. COULSON.
TRELLIS WIRE SUPPORT AND STRETCHER.

No. 491,771.

Patented Feb. 14, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

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TRELLIS-WIRE SUPPORT AND STRETCHER.

SPECIFICATION forming part of Letters Patent No. 491,771, dated February 14, 1893.

Application filed April 28, 1892. Serial No. 430,954. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. COULSON, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Trellis-Wire Supports and Stretchers, of which the following is a specification.

My invention relates to devices for supporting and stretching the wires of trellises in greenhouses and graperies. Heretofore it has been usual in such trellises to support the wires at intermediate points by screw eyes fastened in the inclined rafters, the respective ends of the wires being connected to the eyes of threaded rods supported in brackets and having nuts by which tension is applied to the wires. There is in these devices no means of varying the distances of the trellis wires from the glass of the house and the bracket devices at the ends of the wires occupy much valuable space and the object of my invention is to overcome these objections.

In carrying out my invention I provide rods with eyes for carrying the trellis wires at intermediate points and these rods are adjustable in yoke clips secured to the inclined rafters. The respective ends of the wires are connected to rotatable stretcher bars that are attached to the end or gable rafters of the house by plates having bosses through which the bars pass and in which they can rotate and are longitudinally adjustable. The adjustable rods and bars provide for moving the trellis wires and varying the distance of the wires and the vines they support nearer to or farther from the glass of the house as may be desired without disturbing the vines. These rods and bars occupy a position at right angles to the trellis wires.

In the drawings, Figure 1 is a longitudinal section through a greenhouse or grapery roof at one end. Fig. 2 is a partial cross section of the inclined roof. Figs. 3, 4 and 5 illustrate by face, edge and plan views the intermediate supports for the trellis wires, and Figs. 6, 7 and 8 are face, edge and plan views of the stretcher bars and plate at the ends of the wires. Figs. 3 to 8 inclusive are on a larger scale than Figs. 1 and 2 for clearness.

I have illustrated my improvements as applied to a green house or grapery constructed mainly of iron and in which *a* represents the inclined rafters, *b* the longitudinal angle iron plates upon said rafters at right angles thereto, which parts are connected as usual by bracket clips *c*.

d represents the inclined roof bars connected to the angle iron plates *b*. These roof bars are preferably of wood and they carry the glass *e* of the roof in the usual manner.

My improvements relate especially to the devices for supporting adjustably and for stretching the trellis wires as follows. *h* represents the yoke or U shaped clips provided with clamping screws 2 3. One member of the yoke clips is perforated and internally grooved for the adjustable sliding eye rod *i*. The yoke clips pass over the under edge of the inclined rafters *a* and are secured by the clamping screws 2. The adjustable eye rods *i* receive the trellis wires *k* at intermediate points and support the same and the vines connected therewith. These eye rods pass through the clips and the internal grooves therein, the grooves being deep to receive said rods freely when the clips are secured in place, and the clamping screws 3 press the rods *i* against the face of the rafters and hold them in place. These rods are of such a length that their ends almost touch the glass *e* when the trellis wires occupy the most elevated position and the rods *i* project through the clips sufficiently to allow for being drawn down to the desired maximum or any intermediate position.

Plates *l* having bosses *l'* and clamping screws 4 are connected by bolts 5 or in any desired manner upon the faces of the gable rafters at the respective ends of the trellis wires *k*. The stretcher bars *m* pass through the bosses *l'*, are movable lengthwise therein, and are clamped in the desired position by the screws 4.

The ends of the trellis wires *k* are received in holes 6 through the bars *m* and said bars are to be rotated by a wrench engaging the polygonal end *m'* in twisting the wires *k* around the cylindrical portion *m²* of said bars in the act of stretching said trellis wires to the desired extent.

The bars *m* are shown as polygonal while the opening through the bosses *l'* is round and of a size to receive the polygonal figure of the bars. The clamping screws 4 act upon one face of the polygonal figure and force the longitudinal opposite edges of the polygonal figure against the inner surface of the boss. A gripping action is thus established which is more effectual to prevent the rotation of the bars *m* than if said bars were round.

The bars *m* like the eye rods *i* are longitudinally adjustable to the desired extent, and they occupy a position at right angles to the longitudinal wires *k* and are set at right angles to the inclined rafters *a*.

The bars *m* and their supports being upon the inner faces of the gable rafters only occupy a small amount of space so that vines can be connected to the wires *k* beneath the full extent of glass surface of the house.

I claim as my invention:

1. In a greenhouse or grapery trellis, the combination with means for holding and tightening the trellis wires at their respective ends, of the yoke clips adapted to be connected to the inclined rafters, the longitudinally movable eye rods passing through said clips for supporting the trellis wires at intermediate points, and the screws for clamping to place said eye rods, substantially as set forth.

2. The combination with the eye rods *i* of the yoke clips *h* perforated and internally grooved and having clamping screws 2, 3, substantially as set forth.

3. In a greenhouse or grapery trellis, the combination with means for supporting the trellis wires at intermediate points, of the

plates and bosses adapted to be secured to the gable end rafters, the longitudinally movable and rotatable stretcher bars to which the ends of the trellis wires are connected, said bars passing through said bosses and the clamping screws 4, substantially as set forth.

4. The combination with the attaching plates *l* their bosses *l'* and clamping screws 4, of the stretcher bars *m*, having holes at 6 for the ends of the trellis wires and polygonal ends *m'*, to be engaged by a wrench in rotating said bars *m*, substantially as set forth.

5. The combination with the attaching plates *l* their bosses *l'* and clamping screws 4 of the polygonal stretcher bars *m* having holes at 6, for the ends of the trellis wires and polygonal ends *m'*, for a wrench, and cylindrical or round parts *m''* for the coiled ends of the trellis wires, substantially as and for the purposes set forth.

6. The combination with the inclined rafters *a* and trellis wires *k*, of the eye rods *i* clips *h* and screws 2, 3, for supporting the trellis wires at intermediate points, the attaching plates *l* their bosses *l'* and clamping screws 4, and the rotatable stretcher bars *m* to which the respective ends of the wires are connected and by which said wires are drawn taut, substantially as and for the purposes set forth.

Signed by me this 18th day of April, A. D. 1892.

WILLIAM H. COULSON.

Witnesses:

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