No. 870,864. PATENTED NOV. 12, 1907.

C. I. J. BARKER.

TRELLIS.

APPLICATION FILED FEB. 26, 1907.

Fig. 1.

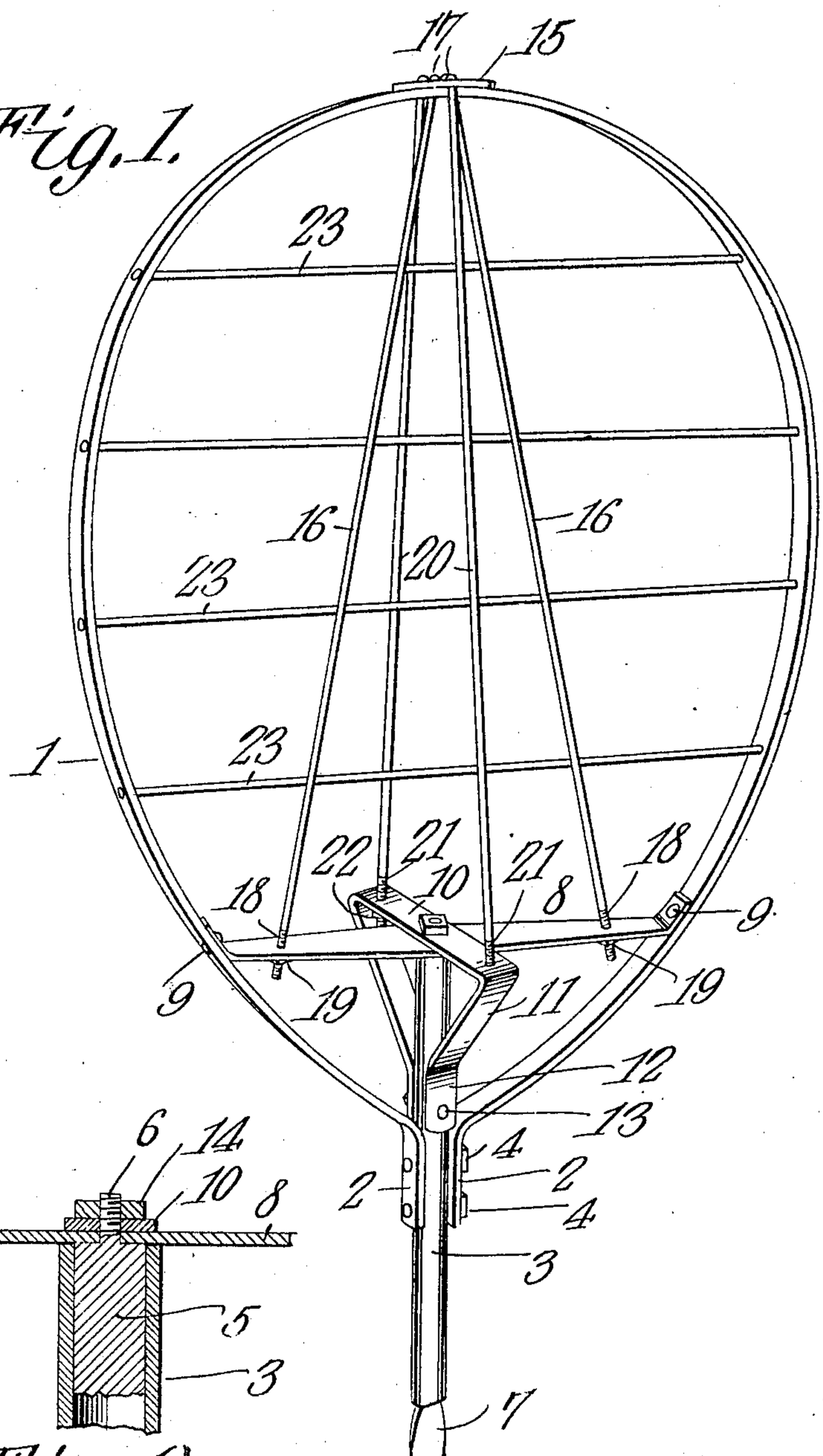





Fig. 2.

WITNESSES.

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## TRELLIS.

No. 870,864. Specification of Letters Patent. Patented Nov. 12, 1907.

Application filed February 26, 1907. Serial No. 359,341.

*To all whom it may concern:*

Be it known that I, CLARENCE I. J. BARKER, a citizen of the United States, residing at David City, in the county of Butler and State of Nebraska, have invented a new and useful Trellis, of which the following is a specification.

This invention has reference to improvements in trellises designed for the training of plants or vines, and its object is to produce a trellis of such form and so constructed that the parts may be under such constant tension as to maintain the shape of the trellis under various conditions of use and weather.

The invention consists essentially of a frame, preferably elliptical in shape, having rods or wires secured to the sides and stretched across the narrower diameter and other rods or wires stretched across its longer diameter and spaced apart at one end to form a pyramidal outline and provided with means for putting these longitudinal rods or bars under tension in order to tend to lengthen the shorter diameter and thus put the entire structure under such initial tension that it will remain in this condition under the various conditions to which it is subjected in use and under the changes of temperature to which such a device is liable. Provision is also made for the easy placing of the trellis in the ground.

The invention will be fully understood from the following detailed description taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a perspective view of a trellis constructed in accordance with my invention; and Fig. 2 is a sectional view of a detail of the construction.

Referring to the drawings, there is shown an elliptical frame 1, preferably made of one piece of metal, say, flexible steel. This elliptical frame may be made of a single flat strip bent into the appropriate shape and at the meeting ends bent parallel, as shown at 2, and embracing the sides of a rod 3 about midway of its length, being there secured by rivets or bolts 4 passing through the rod and through the parallel ends 2 of the frame. The rod 3 may be round or square or polygonal, as desired, and is preferably in the form of a tube into one end of which is shrunk a block 5, see Fig. 2, terminating in a threaded stem 6 above the upper end of the post 3, and the lower end of the post has inserted therein and fast thereto a twisted flat strip 7 constituting an auger end by means of which the post 3 may be readily screwed into the ground without the necessity of driving it with a sledge or mallet.

The upper end of the post 3 extends upward into the body of the elliptical frame for a distance and at its upper end receives a cross plate or bar 8, the two ends of which are upturned, as shown, and secured to the sides of the frame 1 by rivets or bolts 9. Extending at right angles to the bar 8 is the flat base 10 of an inverted triangular frame 11, the free ends of which are bent parallel, as shown at 12, and are fastened to the post 3 by means of a bolt or rivet 13 immediately above the junction of the frame 1 with the post 3. The bar 8 and base 10 of the frame 11 are made fast to the post 3 by means of a nut 14 applied to the threaded stem 6 which extends through a suitable perforation in the bar 8 and base 10 of the frame 11.

On the top of the frame 1 there is a plate 15, and through the frame 1 and plate 15 extend rods 16—16, riveted or otherwise secured at their upper ends to the plate, as shown at 17, and at their lower ends threaded, as shown at 18, and extended through perforations in the bar 8 near its junction point with the frame 1 and spaced equi-distant from the stud 6 rising from the post 3. Below the bar 8 the threaded ends 18 receive nuts 19. Extending through and riveted to the plate 15 on each side of the frame 1 there are two other rods 20 extending downward and passing through perforations in the base 10 of the frame 11 at equi-distant points from the stud 6. The lower ends of these rods where they pass through the base 10 are threaded, as shown at 21, and below the base 10 nuts 22 are applied to these threaded ends. Extending laterally across the frame 1 parallel to each other and to the bar 8 are a number of rods 23 with their ends passed through suitable perforations in the sides of the frame 1 and there riveted or otherwise secured to this frame. Now, by screwing up the nuts 19 on the threaded ends 18 of the rods 16 these rods are put under longitudinal strain and they tend to draw the upper end of the frame 1 toward the bar 8. Such a strain will tend to cause the sides of the frame to recede one from the other in a lateral direction but this last-named movement is opposed by the lateral rods 23, and, therefore, the longitudinal strain imparted to the rods 16 is transmitted to the rods 23 and these will also be put under longitudinal strain, the result being that the rods 16 and the rods 23 of the frame 1 may be put under an initial strain as great as the strength of the materials will permit and the frame will therefore remain in this state of strain under the conditions of use and under the stress of weather, since the strain may be made sufficiently great to keep all the parts tight even when the metal has expanded under the heat of the warmest weather to which the device is liable to be subjected.

In order to prevent the side buckling or bending of the frame, the rods 20 are also put under initial strain by means of the nuts 22, and any tendency of the frame to buckle or bend toward the front or back is opposed by these rods 20 and the frame 11 to which they are connected. The strain on the rods 20 also coacts with the strain on the rods 16 to maintain the rods 23 under longitudinal strain.

In order that the whole structure may be made as light as consistent with strength, the rods 16 and 20 may be made of the same gage as the rods 23 provided

the number of rods 23 does not materially exceed the number of rods 16 and 20. If the structure is made large, so that more rods 23 are used than there are rods 16 and 20 combined, then the gage of the rods 16 and 20 may be made larger than that of the rods 23. When the trellis is placed in the ground the vines or plants may be twined around the rods 16 and 20 and will be supported by the lateral rods 23 and also by the frame 1. Since the motion of the growing vines is liable to cause them to be rubbed or marred by contact with the metallic trellis, they may be attached thereto by covered wire clips which will form a strong connection for attaching the vines to the trellis but at the same time the covering will act as a cushion to prevent rubbing or marring of the vines.

While I have shown and described in some detail the block 5 with its threaded stem 6, other forms of connection may be used. For instance, the stem 6 may be a common plug bolt and the block 5 may be a common nut which is shrunken and swaged into the post 3, as will be readily understood.

I claim:—

1. A trellis composed of an elastic frame, inelastic connections between the sides of the frame, and other inelastic connections arranged at approximately right angles to the first-named connections and provided with adjustable means for putting them under longitudinal strain.

2. A trellis comprising an elastic, elliptical frame, inelastic wires connecting the sides of the frame through its smaller diameter, and other inelastic wires extending through the frame on its longer diameter and provided with means for putting the longitudinal wires on the frame under strain.

3. A trellis composed of an elliptical frame of spring metal, cross wires connecting the sides of the frame on the smaller diameter thereof, a cross bar near one end of the frame parallel with the cross wires, other wires connected to one end of the frame and extending along its longer diameter and passing through the cross bar at points near its connection with the sides of the frame, and adjusting nuts on said longitudinal wires for putting them under longitudinal strain.

4. A trellis comprising an elliptical frame, a post to which one end of the frame is secured and which extends for a distance along the longer diameter of the frame, a cross bar connected to the upper end of said post and to the sides of the frame, cross wires connected to the sides of the frame parallel with the cross bar, longitudinal wires connected to the upper end of the frame and passing through the cross bar at points equi-distant from its point of connection with the post, and nuts applied to said longitudinal wires and adapted to put them under longitudinal strain.

5. A trellis comprising an elliptical frame of elastic material, cross wires connected to the sides thereof through its smaller diameter, a cross bar connected to the sides of the frame near its lower end, a post to which the lower end of the frame is secured and having its upper end secured to said cross bar, a supplemental frame connected to the post at right angles to the cross bar, wires connected to the top of the main frame and passing through the cross bar and there receiving straining nuts, and other wires connected to the top of the main frame and passing through the supplemental frame at points equi-distant from the post and there receiving straining nuts.

6. A trellis comprising an elastic frame, inelastic cross wires therein and a cross bar near its lower end, a post to which the lower end of the frame is connected and which, in turn, is connected to the cross bar, a supplemental frame connected to the post and extending at right angles to the cross bar, straining wires connected to the upper end of the main frame and also connected at their lower ends of the cross bar and supplemental frame by straining nuts, and an auger point fast on the lower end of the cross bar and adapted to be inserted in the ground.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CLARENCE I. J. BARKER.

Witnesses:
A. H. ETTING,
E. K. CROW.