(No Model.)

# A. J. UPHAM.

## WIRE FENCE.

No. 555,193. Patented Feb. 25, 1896.

*Fig. 1.*

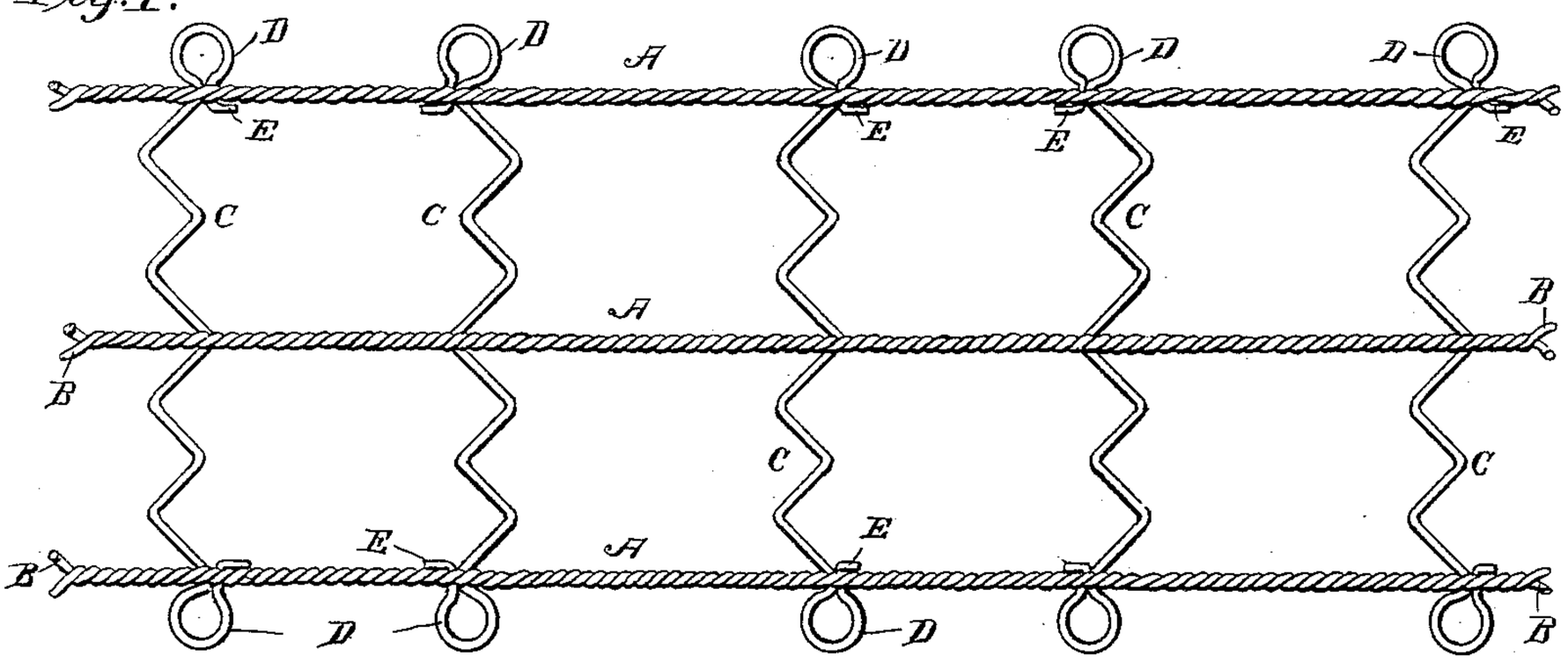



*Fig. 2.*

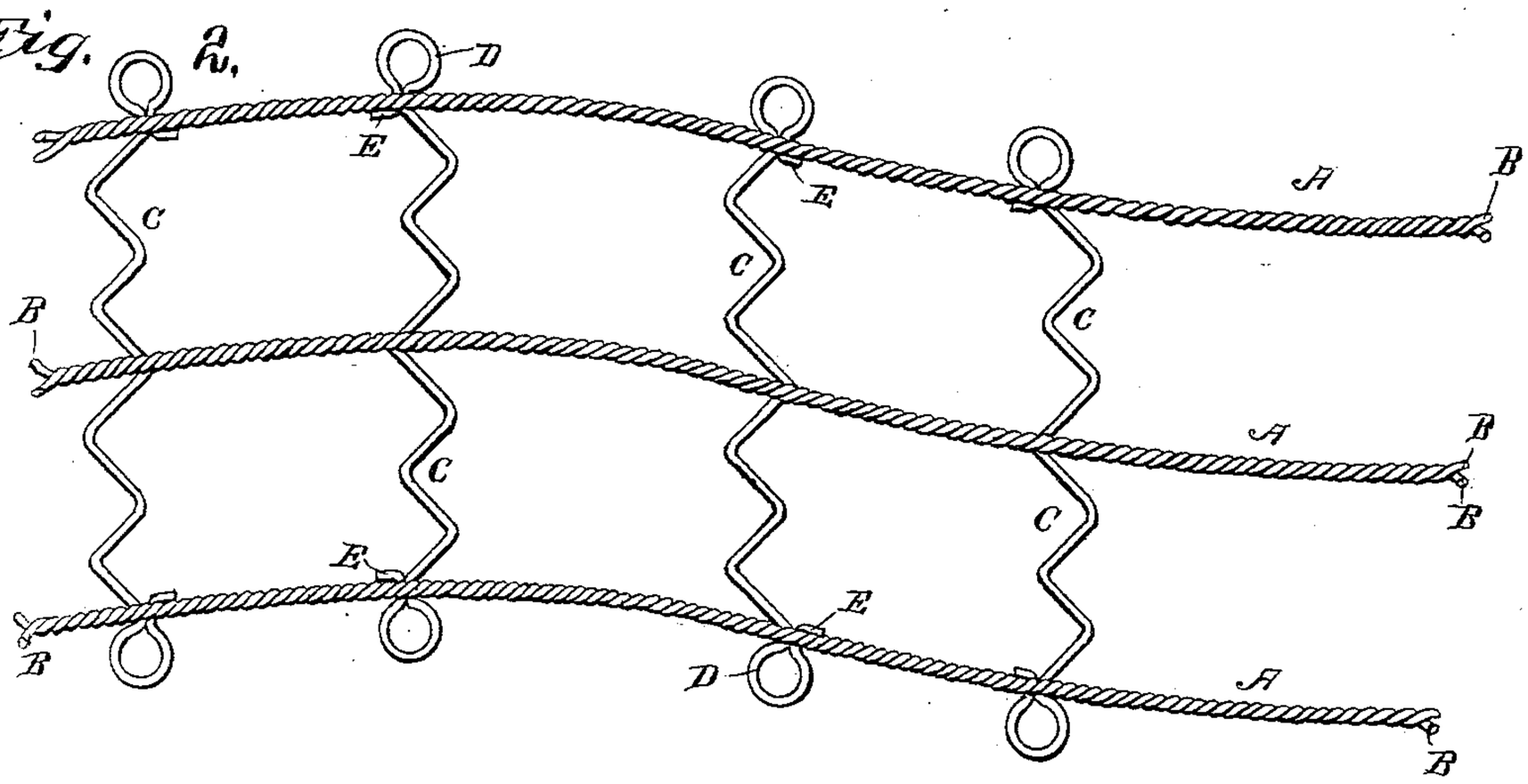
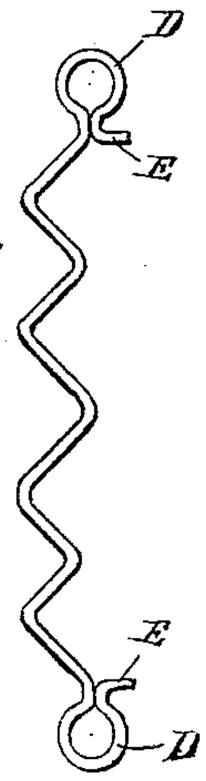



*Fig. 3.*




Witnesses.
Howard W. Orr.
Herbert Lewis

Inventor
Andrew J. Upham.
By John G. Manahan

# UNITED STATES PATENT OFFICE.

ANDREW J. UPHAM, OF SYCAMORE, ILLINOIS, ASSIGNOR OF ONE-THIRD TO WILLIAM H. ROGERS, OF SAME PLACE.

## WIRE FENCE.

SPECIFICATION forming part of Letters Patent No. 555,193, dated February 25, 1896.

Application filed July 18, 1895. Serial No. 556,400. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. UPHAM, a citizen of the United States, residing at Sycamore, in the county of De Kalb and State of Illinois, have invented certain new and useful Improvements in Wire Fences; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in wire fences, and pertains more especially to that type of fence in which the main horizontal fence-wires are constructed by intertwisting two or more single wires, and vertical stays or braces projected through said horizontal wires or runners between the twist of the strands composing the latter. These stays are inserted, as aforesaid, at such intervals as may be desired, the purpose of their use being twofold—to interconnect or brace the runners in a vertical plane, thereby causing them to constitute a unitary structure, and, second, to serve as pickets to close the intervals between said runners to as small openings as may be desired. This type of fence is to be distinguished from the usual forms of woven-wire fence in which, as also in the construction of picket-wire fence, there is employed more or less diagonal bracing.

One objection to all woven-wire fences and to fences in which there is employed diagonal or lateral bracing of the cross stays or strips is that the structure is not susceptible of being curved or bent downward or upward when placed in its position for use.

Almost invariably more or less undulations of the ground must be crossed with the line of the fence. To accommodate itself therefore to the curvature of the earth it is essential, or at least very desirable, that the fence when being placed in position may be capable of being bent downward to cross the depressions and to be bent upward to pass over convexities in the line of such fence.

A difficulty met with in the construction of the individual vertical slat fence above referred to is that of retaining the horizontal wires or runners at any predetermined point on said slats. This has been attempted to be accomplished by indenting one or more of the contiguous wires of the runner or stay at their point of contact. This not only injured the fiber of the wire, but depended entirely for its success upon permanent retention of the adjacent parts in such nick or recess.

In my invention it is the purpose to provide a wire fence which shall be substantially a concrete structure from top to bottom, and yet, by reason of the absence of diagonal braces therein, be susceptible of being curved upward or downward when being placed in position, so as to conform to the varying contour of the surface of the earth, as aforesaid.

A further purpose of my invention is to provide vertical stays or strips of such conformation, respectively, that when in position the intersected runners cannot, either by their own weight or by the vibration caused by the wind, slide up and down said stays.

I accomplish the above objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a section of fence embodying my invention. Fig. 2 is the same, except that the runners are curved in a vertical plane to exhibit their position in passing over inequalities in the surface of the earth; and Fig. 3 is a detail view of one of the stays.

Similar letters refer to similar parts throughout the several views.

A A are the horizontal runners referred to and, as shown herein, consist of two intertwisted strands B B. These runners may be of such numbers and placed at such intervals as may be necessary in any instance.

C C are the vertical stays constructed with a circular eye or loop D at each end, said eye terminating in the lock E, constructed by turning the extremity of the wire constituting the stay C perpendicularly to the general course of said stay and parallel with the runner A.

That portion of the stay C between its terminal eyes D D is of a zigzag formation, and it will be noticed that in each succeeding stay C such zigzag begins and terminates in a dif-

ferent direction from that in the next preceding stay. The purpose and effect of this construction is to have the engagement of the stay C with each of the runners A in an angle of such stay projected oppositely from the angle of the next preceding stay and the next succeeding one. The stay C projecting as it does through the runners A between the strands B of the latter and being held at the angle of two adjacent stays, such angles either projecting toward or from each other, renders it impracticable for such runners to slip up or down said stay, as each adjacent stay locks said runner against such movement. To make this situation plainer it may be stated that it is impossible for either of the runners A to move up or down the stay C without some degree of longitudinal movement of such runner or lateral movement of such stay, in order that the runner may follow the obliquity of the stay in either direction of the angle of engagement, and that both the runner and stay in question are held from said movement by the fact that the stay on either side of the one under consideration engages such runner in an angle projected in an opposite direction, and therefore the suggested movement of either the runner or stay would involve the movement in an opposite direction at such adjacent stays of the runner, which is an impossibility.

The stay C is not only self-locking by reason of the reversed position of each alternate one, but such stay also locks itself at its respective ends, and also prevents the oscillation or widening of the upper and lower runners by reason of the loops D, which engages the outer surface of the upper and lower runners, respectively. The upper and lower runners are further held from approach toward the interior one by the lock E abutting against the inner surface of said upper and lower wires, respectively. Said lock also precludes the further projection of the stay C through the upper and lower runners.

The advantages of my invention are that it constitutes a very simple and efficient mode of interconnecting the runners A and at the same time renders it feasible, as aforesaid, to bend the structure when being placed in position upward and downward in a vertical plane. It also dispenses with the necessity of any denting or injury of contiguous wires. The entire structure produces a very economical, durable, and attractive fence.

It is not my intention to claim stays with their angles placed transversely of the line of the fence, nor stays the bends of all of which extend in the same direction at each runner.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a wire fence, the combination of two or more parallel horizontal runners, as A, and a series of stays as C, of an angular formation, passed vertically through said runners, with said angles extended in the line of the fence, and the projection of each stay through the same runner, being at an angle of said stay extending in the opposite direction from that of the angle of the next adjacent stays, which pass through the same runner, substantially as shown, and for the purpose described.

2. In a wire fence, the combination, of two or more horizontal runners A, consisting of intertwisted wires B and the stays C having a zigzag formation and provided with terminal loops D and locks E, the said stays C being successively seated in said runners with such zigzags, where they pass respectively through the same runner, projected in opposite directions and said locks E abutting against the interior surface of the upper and lower runners respectively, substantially as shown and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW J. UPHAM.

Witnesses:

WESLEY L. CRAMER,

FRANK C. KUHNS.