

(No Model.).

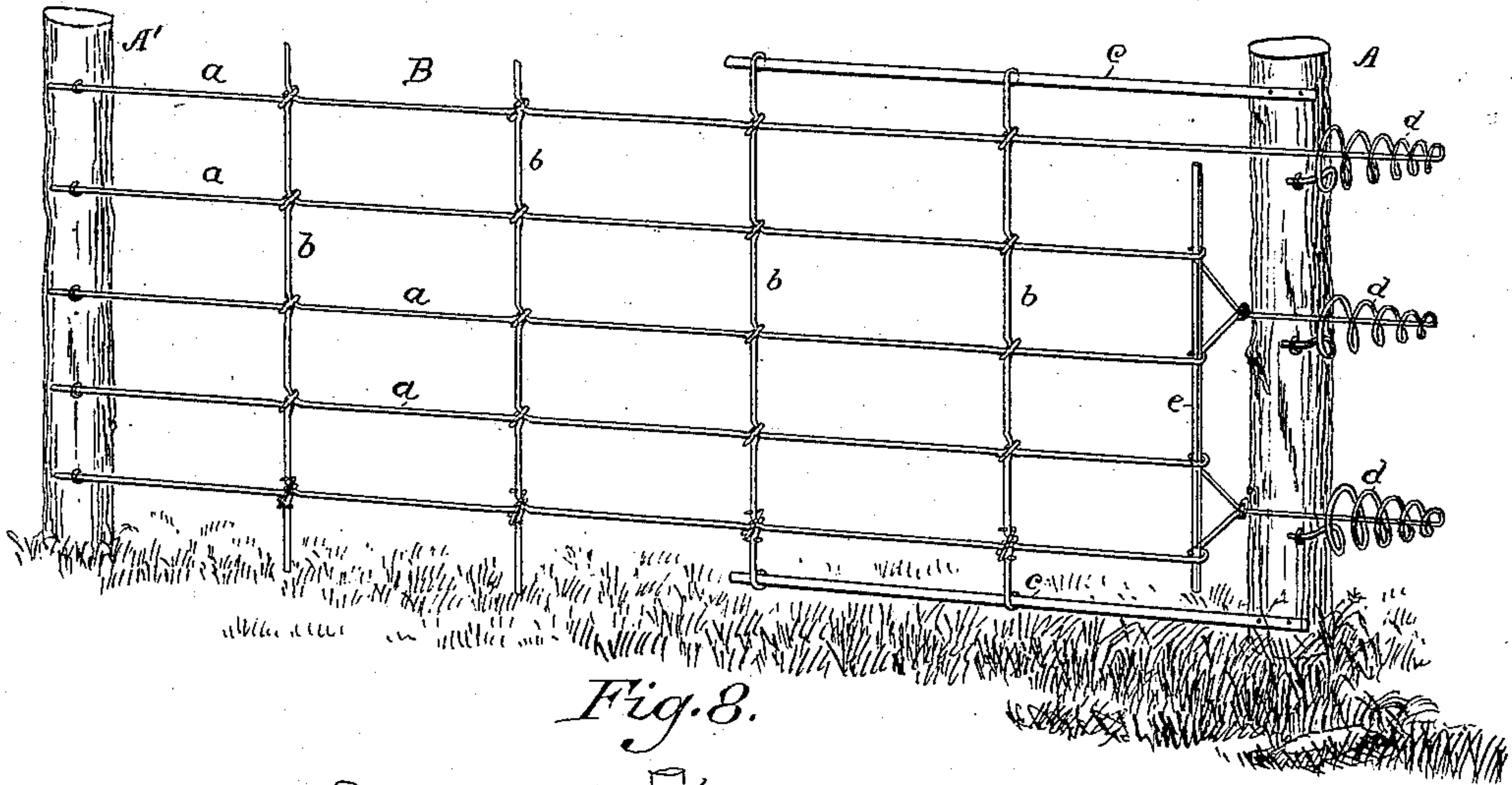
A. F. CALDWELL.

WIRE FENCE.

No. 372,060.

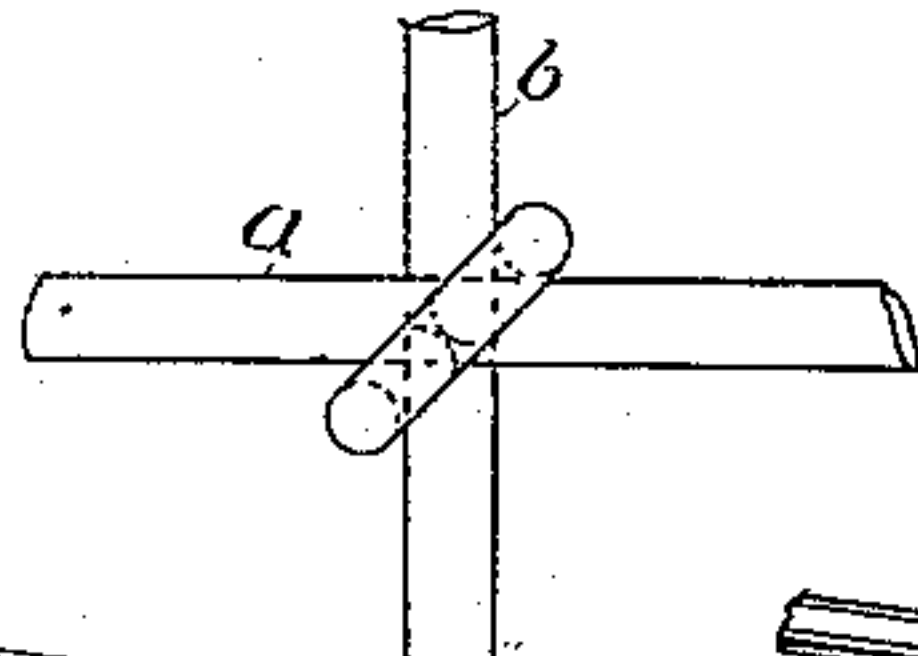
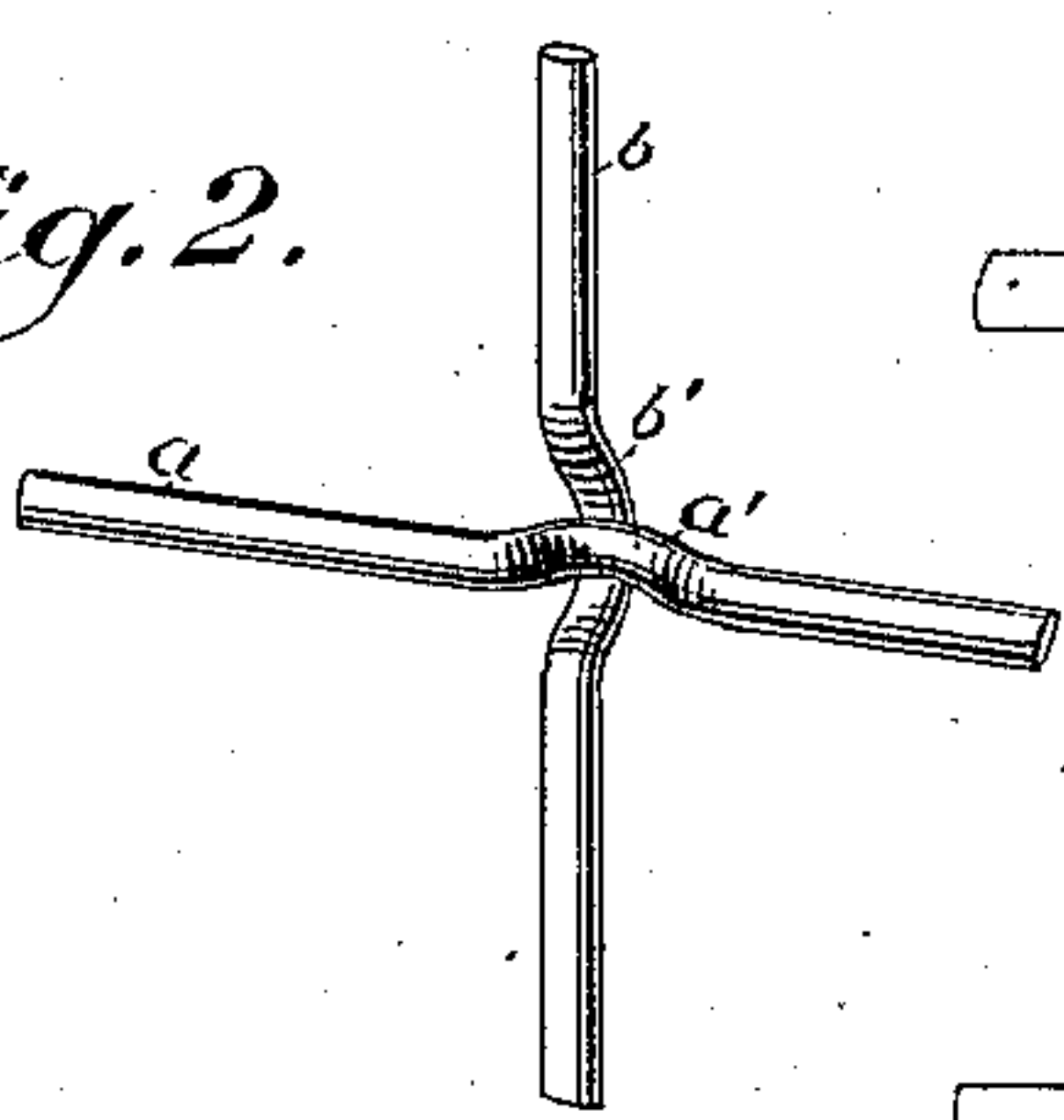
Patented Oct. 25, 1887.

*Fig. 1.*

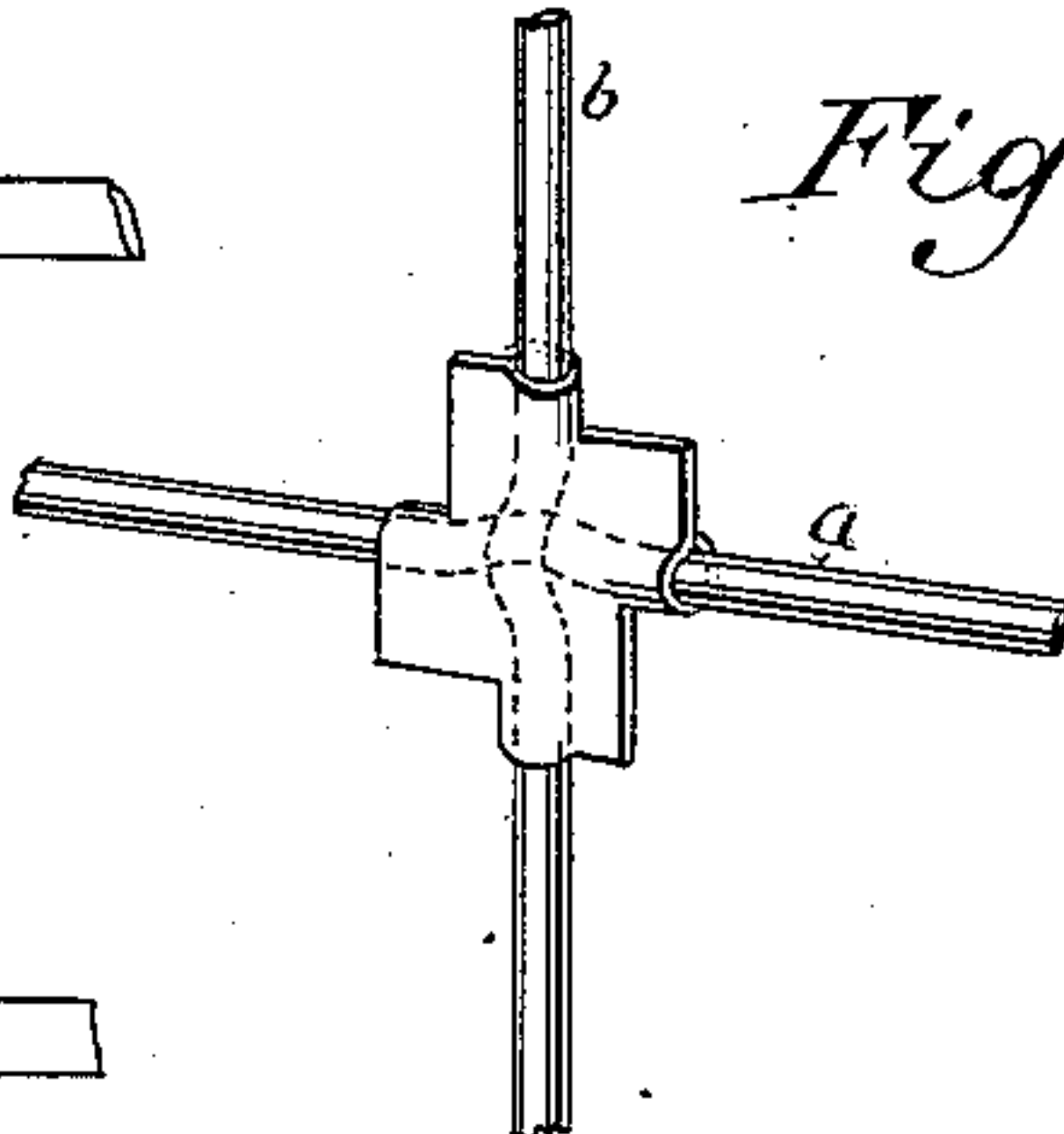


*Fig. 8.*

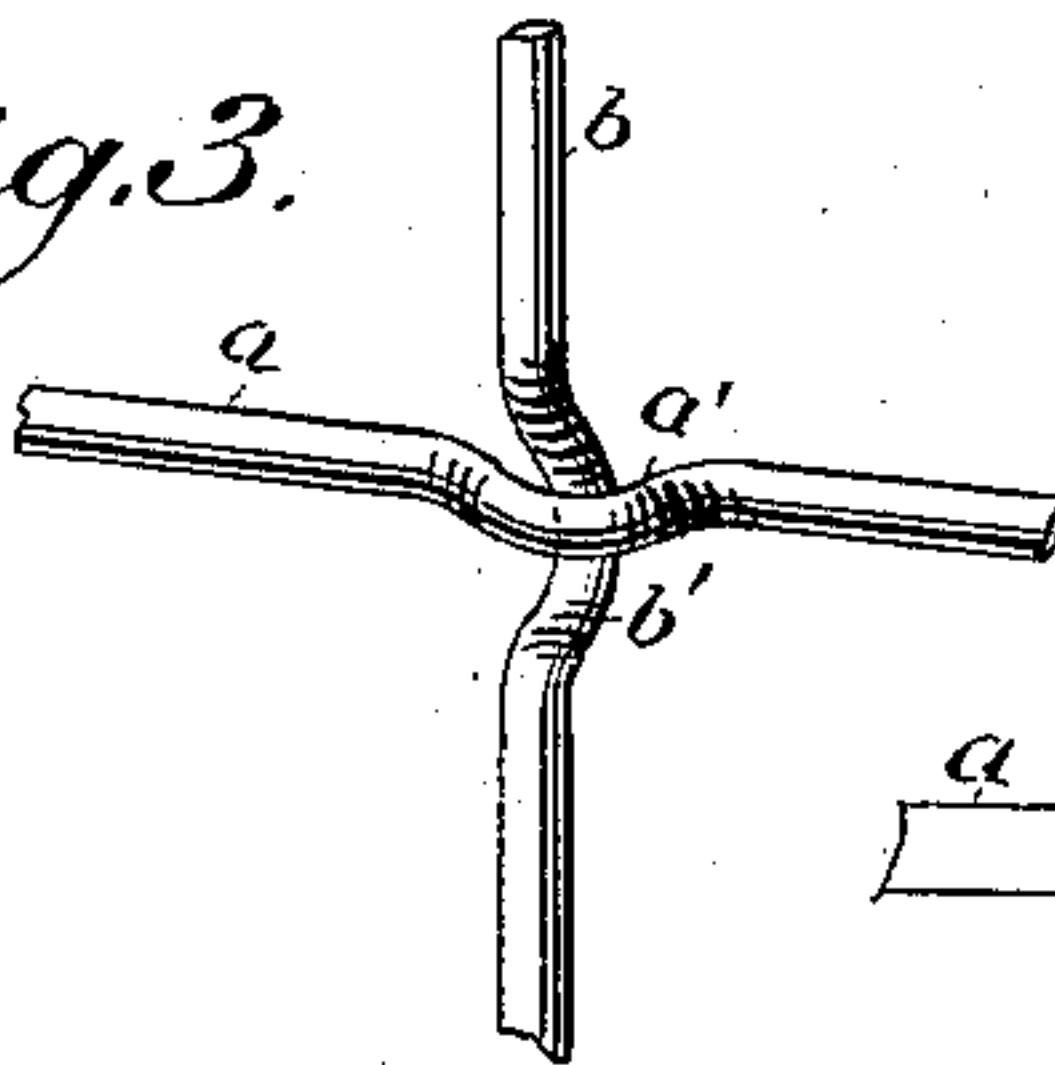
*Fig. 2.*



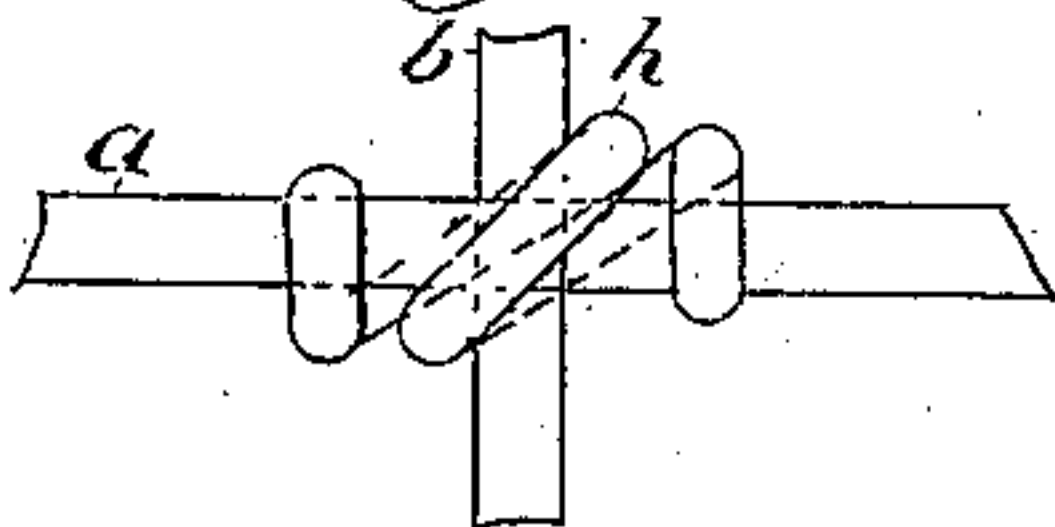
*Fig. 4.*



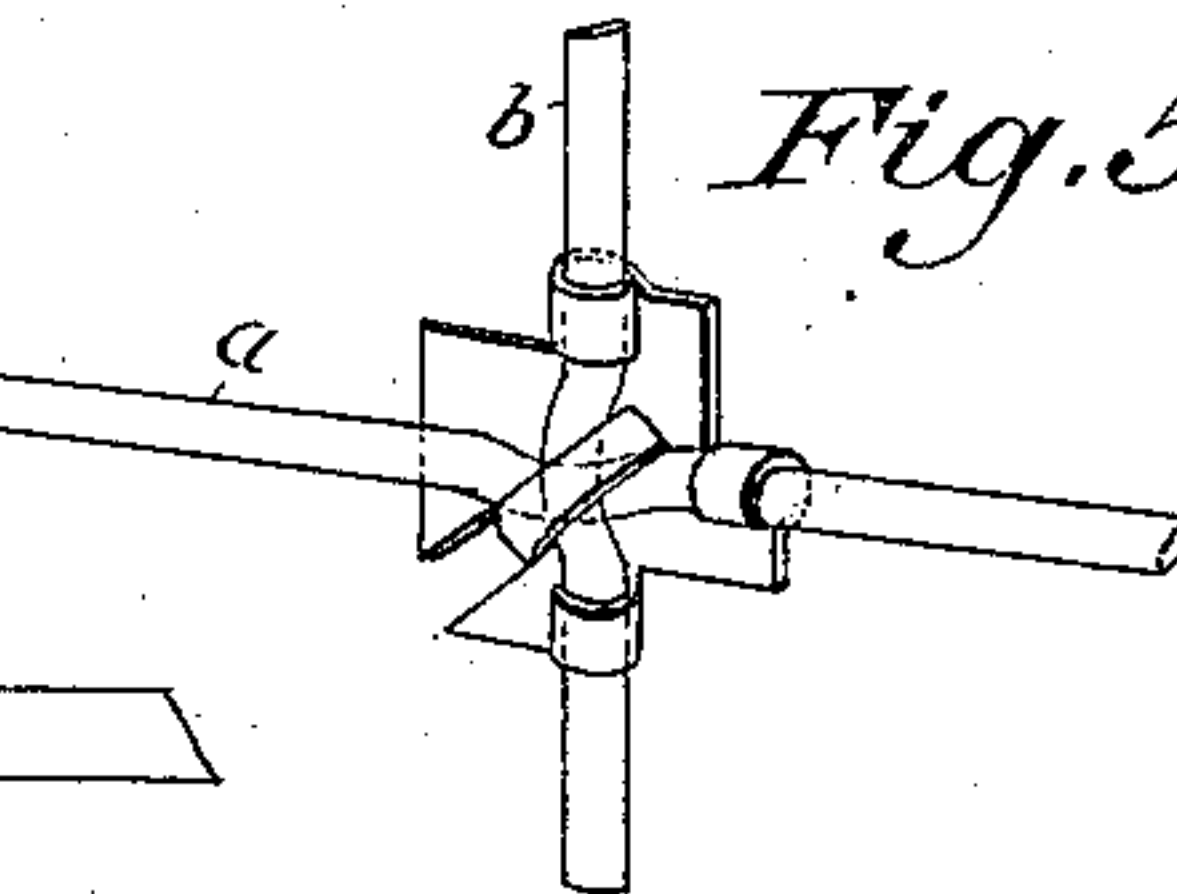
*Fig. 3.*



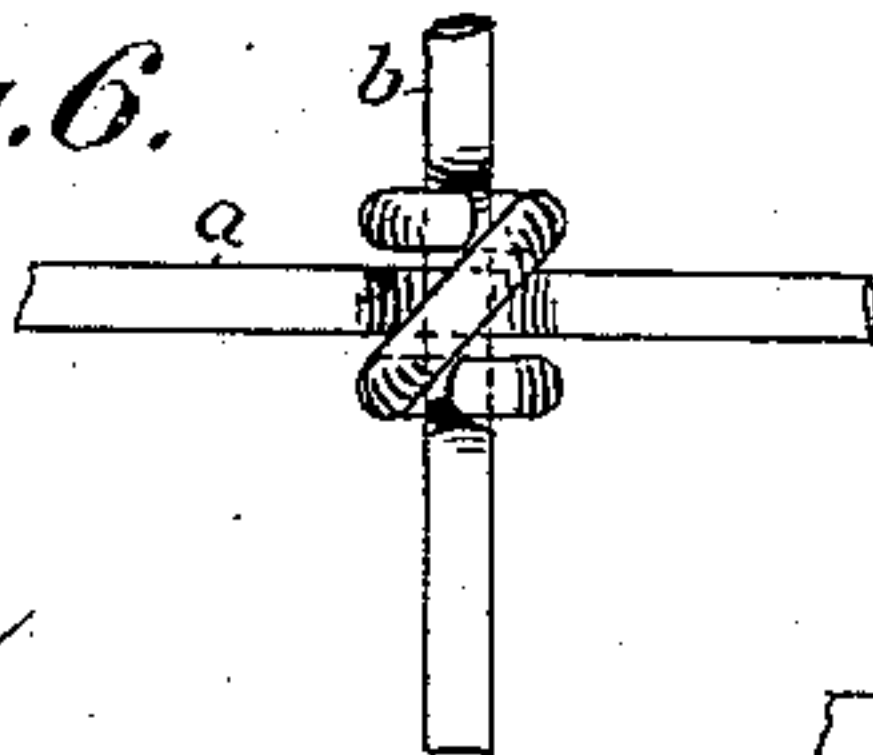
*Fig. 10.*



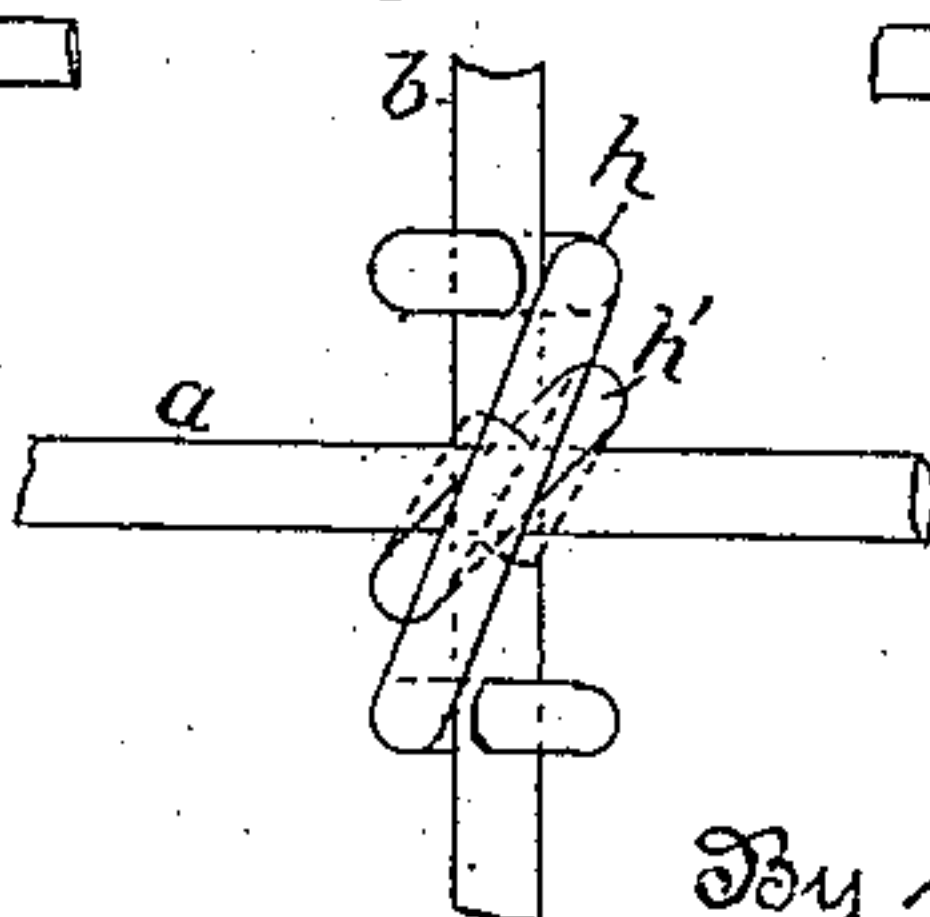
*Fig. 5.*



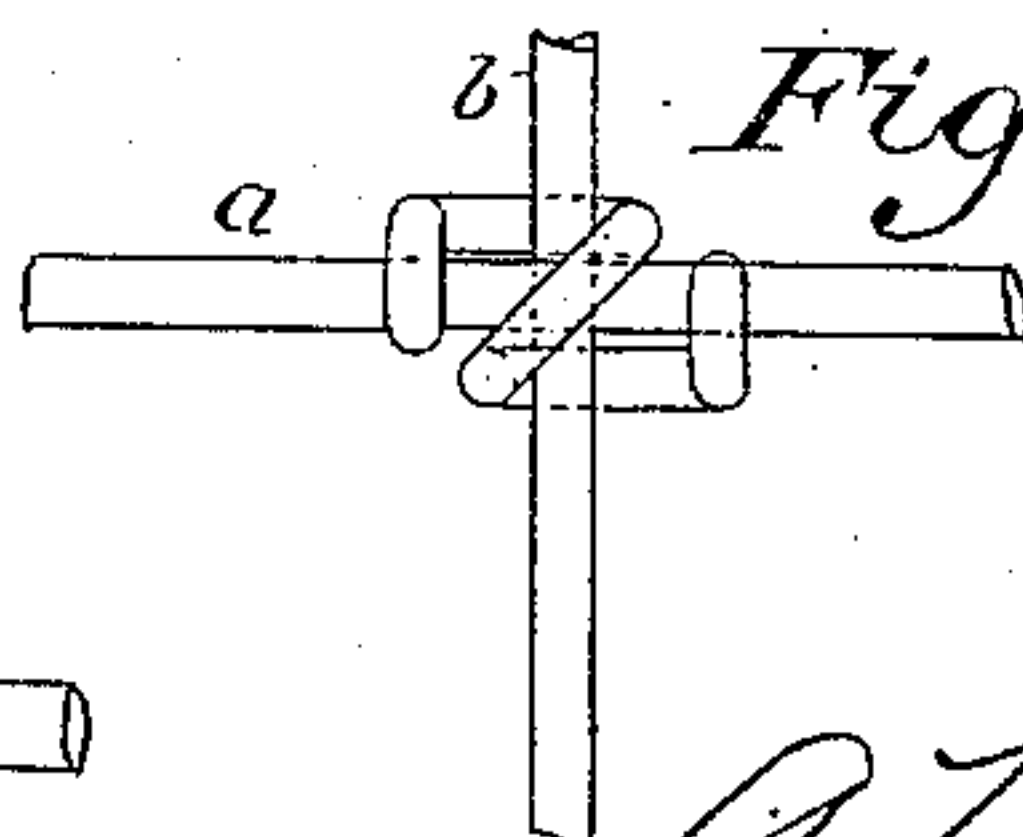
*Fig. 6.*



*Fig. 11.*



*Fig. 7.*



Witnesses

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# UNITED STATES PATENT OFFICE.

ALFRED F. CALDWELL, OF CHICAGO, ILLINOIS.

## WIRE FENCE.

SPECIFICATION forming part of Letters Patent No. 372,060, dated October 25, 1887.

Application filed February 25, 1887 Serial No. 222,861. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED F. CALDWELL, a citizen of the United States, residing at Chicago, in the county of Cook 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in the construction of portable wire fences, the object being to produce a fence which may be readily attached to its supporting-posts, the longitudinal wires of said fence being interlocked and firmly connected with the vertical cross-wires at their points of intersection, and the whole forming an elastic yielding structure that shall slightly give when struck by cattle and shall accommodate itself to the various changes of temperature to which it may be exposed. To accomplish these results I construct my fence as follows: The longitudinal wires, sufficient in number to form the fence, are placed at the desired distance from each other, and a series of short vertical wires are placed across these longitudinal wires at suitable distances apart and connected with said longitudinal wires at their crossing-points by crimping or making a bend in each wire. Those in the longitudinal wires present, preferably, the greatest divergence from a straight line and the vertical or cross wires a less divergence, both wires being, however, bent in the same direction, to enable the fastening staple or clasp, which is then bent around them at their intersection, to be more readily secured in position. These crimps or bends in the longitudinal wires afford a certain amount of elasticity sufficient to counteract the changes in its length produced by such changes of temperature as the fence may be subjected to; but I propose to supplement this in certain cases, where the fence is liable to sudden shocks—as from cattle running against it—by forming upon the end of each wire where it is attached to the end posts a spiral coil, which, as the wire I prefer to use is unan-

nealed, will act as a spring, allowing the fence to give to the blow and return to its normal position after the disturbing influence has passed; or if the longitudinal wires are annealed, and therefore unfitted for the purpose of a spring, the ends of said wires may be attached to a cross-piece and the latter connected with the post by similarly-coiled springs formed from hard wire that has not been deprived of its elasticity by the annealing process. I also make the vertical or cross wires of the fence somewhat longer than the distance between the upper and lower longitudinal wires, so that they shall project both above and below the same, thus affording means for retaining a board at either the top or bottom of the fence, or both, as may be desired.

In the accompanying drawings, forming a part of this specification, the same letters of reference are used to indicate like parts in the different figures, Figure 1 being a perspective view of a section of the fence, showing the general arrangement of its several parts and the method of uniting the longitudinal and vertical wires at their intersections by means of a clasp or staple bent around the crimped portion of each wire. Fig. 2 shows the manner in which the vertical and longitudinal wires are crimped at their points of intersection, both wires diverging from a straight line to the same side. Fig. 3 shows a modification in which the wires are bent in opposite directions at their crossing-points. Figs. 4, 5, 6, 7, 8, and 9 show different forms of clamps which may be used for the purpose of securing the vertical wires to the longitudinal wires at their crossings. Figs. 10 and 11 show the forms of the clamps I prefer to use, the double clamp or staple, Fig. 11, being used for the purpose of connecting the lower longitudinal wire to the vertical wires and the single clamp or staple, Fig. 10, connecting all the joints above those on the lower wire.

In constructing this fence I employ a suitable machine by means of which the longitudinal wires *a a*, wound in suitable coils at the proper distance from each other upon a reel, are drawn forward and united with the vertical wires *b b* by means of suitable dies which crimp the wires *a b* at their points of intersection, and then securely bind them together at that point by means of clamps firmly set upon



the joining by the same die that forms the crimp. After leaving the dies the finished fence may be wound upon a spool in suitable lengths ready to set up and attach to the posts.

5 In Fig. 1 of the drawings I have shown a single length or panel of the fence complete, A being an end or straining post and A' an ordinary supporting-post, such as are placed at suitable distances from each other along the  
10 line.

B is the fence, connected with the straining-post A as follows: It will be observed that the vertical wires *b b* extend both above and below the longitudinal wires, and for a short  
15 distance from the post are bent around the guide and supporting strips *cc*, one of which strips is secured to said post at the top of the fence and the other to the same post at the bottom, near the ground. These guide-strips  
20 assist in sustaining the fence in position, and may, if desired, be continued along the whole course of the fence from post to post, giving the advantage of a stiff top and bottom rail in case such rail is needed. The upper wire I  
25 prefer to attach to the post A by carrying it by the post and forming its end into a spiral coil, as *d*, which returns around the body of the wire *a*, and has its extremity secured to said post. The wires below the upper one may  
30 be attached to an upright bar, *e*, and two of them united, then carried beyond post A, formed into coils, returned, and fastened to the post A, as in the case of the upper wire. This  
35 method of securing the longitudinal wires to the straining-posts, together with the crimps in said wires, gives great elasticity to the fence, allowing it to accommodate itself to allow the expansion and contraction caused by changes  
40 of temperature as well as the shocks from collision with cattle, and when deflected from a straight line by such shocks to resume its normal position when the deflecting force is removed.

I prefer to make the bends or crimps *a'* and  
45 *b'* of both longitudinal and vertical wires deflect in the same direction, as I am thereby enabled to make the staples or clamps (shown on an enlarged scale in Figs. 9, 10, and 11) clasp the joint tighter than if they deflect in  
50 opposite directions. The clamp for the upper joints, consisting of a single piece of wire bent into the form of a staple, *h*, is inserted diagonally over the crossed wires between the dies of the machine, and is forced down by said dies  
55 and its ends caused to turn up and over the longitudinal wires.

The clamp which I use for the lower longitudinal wire, and which may also be used for the upper, if desired, consists of a staple, *h*,  
60 and an additional staple, *h'*, both of which are placed in the dies at the same time and secured around the crossed wires by one movement of said dies. The staple *h'* is shorter than the staple *h*, and simply passes around  
65 the crossed wires, as shown in Figs. 9 and 11, while the staple *h* passes around the joint and hooks over the vertical wires, as before de-

scribed. The two staples form the clamp shown in Fig. 11 when the operation is complete. Other forms of clamps, as shown in  
70 Figs. 4, 5, 6, 7, and 8, might be used to connect the longitudinal and vertical wires; but I prefer the clamp formed by the staples *h* and *h'* as being easier to manipulate in the machine and giving the best results.

75 It will be apparent that either barbed or plain wire may be used in the construction of this fence, the barbs in nowise interfering with the operation of the machine by which it is manufactured.

80 I am aware that wire fences have been constructed having the longitudinal wires crimped at their points of intersection with the vertical wires, and that various kinds of wire ties have been used for connecting said wires at their  
85 points.

I am also aware that springs have been used to allow for the expansion and contraction of the longitudinal wires by changes of temperature, and I do not, therefore, broadly claim  
90 these devices, but limit my claims to the construction and arrangement of parts as hereinafter stated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent  
95 of the United States the following:

1. In a wire fence, the longitudinal and vertical wires crimped or bent at their points of intersection, the bends in both vertical and horizontal wires being deflected to the same  
100 side, in combination with a clamp formed from a long and short staple surrounding the lower longitudinal and the vertical wires at the points where they are crimped and cross, and secured at each intersection above the lower  
105 wire by a single staple, substantially as shown and described.

2. In a wire fence, the longitudinal wire provided with a spirally-coiled spring formed thereon and returning around said wire, in  
110 combination with the straining-post, as set forth.

3. In a wire fence, the combination of the longitudinal wires of the same with the cross-bar attached to the wires near the straining-  
115 post, two or more of said wires being united and carried beyond the post, formed into coils, returned, and fastened to said post, as shown and described, for the purpose set forth.

4. A wire fence consisting of longitudinal  
120 and vertical wires crimped at their points of intersection and secured at said points by suitable clamps, a straining post, and guide and supporting strips *cc*, secured at one end to said post and sustaining the end of the fence  
125 by means of the vertical wires attached to said strips at the top and bottom, substantially as shown and described.

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

ALFRED F. CALDWELL.

Witnesses:

M. T. E. CHANDLER,  
A. F. TEMPLE.